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MEDICO-CHIRURGICAL TRANSACTIONS.

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PUBLISHED BY

THE ROYAL

MEDICAL AND CHIRURGICAL SOCIETY

OF

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VOLUME THE FORTIETH.

LONDON:
LONGMAN, BROWN, GREEN, LONGMANS, AND ROBERTS,
PATERNOSTER-ROW.

1857.

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1810. SIR HENRY HALFORD, Bart., M.D. G.C.H.
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OF THE

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OCTOBER 1857.

Amongst the non-residents, those marked thus (*) are entitled by composition to receive the Transactions.

Elected

1841 *James Abercrombie, M.D., Cape of Good Hope.

1846 *John Abercrombie, M.D., Physician to the Cheltenham Hospital and Dispensary, Cheltenham.

1851 *Henry Wentworth Acland, M.D. F.R.S., Physician to the Radcliffe Infirmary; Regius Professor of Medicine, and Clinical Professor in the University of Oxford.

1842 William Acton, 46, Queen Anne-street, Cavendish-square. *Trans.* 1.

1818 Walter Adam, M.D., Edinburgh.

1851 John Adams, Surgeon to, and Lecturer on Descriptive and Surgical Anatomy at, the London Hospital; 4, St. Helen's-place, Bishopsgate-street. *Trans.* 1.

1852 William Adams, Surgeon to the Royal Orthopædic Hospital; Lecturer on Anatomy and Surgery at the Grosvenor-Place School of Anatomy and Medicine; 5, Henrietta-street, Cavendish-square. *Trans.* 1.

Elected

1818 THOMAS ADDISON, M.D., Senior Physician to, and Lecturer on Clinical Medicine at, Guy's Hospital, and Consulting Physician to the Royal South London Dispensary; 24, New-street, Spring-gardens. C. 1826, 1853. V.P. 1837. P. 1849-50. *Trans.* 2.

1837 *RALPH FAWSETT AINSWORTH, M.D., Physician to the Manchester Royal Infirmary; 6, Piccadilly, Manchester.

1819 GEORGE FREDERICK ALBERT.

1839 RUTHERFORD ALCOCK, K.C.T. K.T.S., China. *Trans.* 1.

1826 JAMES ALDERSON, M.D. F.R.S., Senior Physician to, and Lecturer on Clinical Medicine at, St. Mary's Hospital; 17, Berkeley-square. S. 1829. C. 1848. T. 1849. V.P. 1852-3. *Trans.* 3.

1843 CHARLES JAMES BERRIDGE ALDIS, M.D., Medical Officer of Health for St. George's Hanover-square; Senior Physician to the Surrey Dispensary; and Physician to the St. Paul and St. Barnabas Dispensary; 1, Chester-terrace, Chester-square.

1850 CHARLES REVANS ALEXANDER, Assistant-Surgeon to the Royal Infirmary for Diseases of the Eye; 6, Cork-street, Bond-street.

1813 HENRY ALEXANDER, F.R.S., Surgeon-Oculist in Ordinary to H.M. the Queen, and Surgeon to the Royal Infirmary for Diseases of the Eye; 6, Cork-street, Bond-street. C. 1822, 1840. V.P. 1850.

1836 HENRY ANGELL, 3, Norfolk-crescent, Oxford-square. C. 1847-8. *Trans.* 2.

1817 ALEXANDER ANDERSON.

1820 THOMAS ANDREWS, M.D., Norfolk, Virginia.

1813 WILLIAM ANKERS, Knutsford.

1819 PROFESSOR ANTOMMARCHI, Florence.

1819 JAMES MONCRIEFF ARNOTT, F.R.S., Vice-President of the Royal College of Surgeons; 2, New Burlington-street. L. 1826-8. V.P. 1832-3. T. 1835-40. C. 1846, 1855-6. P. 1847-8. *Trans.* 8.

1817 JOHN ASHBURNER, M.D. F.L.S., 7, Hyde Park-place, Cumberland-gate. C. 1821, 1830-1.

1851 THOMAS JOHN ASHTON, Surgeon to the Blenheim-Street Dispensary; 31, Cavendish-square.

Elected

1825 BENJAMIN GUY BABINGTON, M.D. F.R.S., Physician to the Asylum for Deaf and Dumb, and Consulting Physician to the German Hospital, and to the City of London Hospital for Diseases of the Chest; 31, George-street, Hanover-square. C. 1829. V.P. 1845-6. T. 1848. *Trans.* 2.

1846 CORNELIUS METCALFE STUART BABINGTON, L.R.C.P., Physician to Queen Charlotte's Lying-in Hospital, and Assistant-Physician to the Hospital for Sick Children; 29, Hertford-street, May-fair.

1820 *JOHN H. BADLEY, Dudley, Worcestershire.

1838 FRANCIS BADGLEY, M.D., Toronto, Upper Canada.

1840 WILLIAM BAINBRIDGE, Kingston, Surrey.

1836 ANDREW WOOD BAIRD, M.D., Physician to the Dover Hospital, Dover, Kent.

1851 *ALFRED BAKER, Surgeon to the General Hospital, and Lecturer on Surgery at Sydenham College, Birmingham.

1839 THOMAS GRAHAM BALFOUR, M.D., Surgeon to the Royal Military Asylum; Chelsea. C. 1852-3. *Trans.* 1.

1848 EDWARD BALLARD, M.D., Medical Officer of Health for Islington; 42, Myddelton-square. *Trans.* 1.

1849 THOMAS BALLARD, 10, Southwick-place, Hyde-park.

1837 WILLIAM BALY, M.D. F.R.S., Assistant-Physician to, and Lecturer on Medicine at, St. Bartholomew's Hospital; and Physician to the Millbank Prison; 45, Queen Anne-street, Cavendish-square. C. 1845-6. L. 1847. S. 1848-9. V.P. 1855-6. *Trans.* 1.

1847 ANDREW WHYTE BARCLAY, M.D., *Secretary*, Assistant-Physician to, and Lecturer on Materia Medica at, St. George's Hospital; Medical Officer of Health for Chelsea; 23A, Bruton-street, Berkeley-square. *Trans.* 2.

1848 EDGAR BARKER, 9, Oxford-square, Hyde-park.

1833 THOMAS ALFRED BARKER, M.D., Senior Physician to, and Lecturer on Clinical Medicine at, St. Thomas's Hospital; 71, Grosvenor-street. C. 1844-5. V.P. 1853-4. *Trans.* 5.

Elected

1843 THOMAS HERBERT BARKER, M.D., Harpur-place, Bedford.

1847 GEORGE HILARO BARLOW, M.D., Physician to, and Lecturer on Clinical Medicine at, Guy's Hospital; Physician to the Magdalen Hospital; 5, Union-street, Southwark.

1840 BENJAMIN BARROW, Surgeon to the Royal Isle of Wight Infirmary; Ryde, Isle of Wight.

1844 WILLIAM RICHARD BASHAM, M.D., Senior Physician to, and Lecturer on Medicine at, the Westminster Hospital; 17, Chester-street, Grosvenor-place. S. 1852-4. *Trans.* 2.

1841 GEORGE BEAMAN, M.D., 32, King-street, Covent-garden.

1856 AMOS BEARDSLEY, Ulverstone, Lancashire.

1836 WILLIAM BEAUMONT, Professor of Surgery in the University of King's College, Toronto, Upper Canada. *Trans.* 2.

1840 CHARLES BEEVOR, 41, Upper Harley-street.

1819 THOMAS BELL, F.R.S. F.L.S., Professor of Zoology in King's College, London; Surgeon-Dentist to, and Lecturer on the Anatomy and Diseases of the Teeth at, Guy's Hospital; and President of the Linnean Society; 17, New Broad-street, City. C. 1832-3. V.P. 1854. *Trans.* 1.

1847 JAMES HENRY BENNET, M.D., Physician-Accoucheur to the Royal Free Hospital; 60, Grosvenor-street.

1845 EDWIN UNWIN BERRY, 7, James-street, Covent-garden.

1820 STEPHEN BERTIN, Paris.

1815 ARCHIBALD BILLING, M.D. F.R.S., late Senior Physician to the London Hospital; Member of the Senate, and Examiner in Medicine at the University of London; 6, Grosvenor-gate. C. 1825. V.P. 1828-9.

1827 WILLIAM BIRCH, Barton-under-Needwood, Staffordshire. *Trans.* 2.

1850 JAMES BIRD, M.D., Lecturer on Military Surgery at St. Mary's Hospital Medical School; 27, Hyde Park-square.

1855 PETER HINCKES BIRD, 1, Norfolk-square, Hyde-park.

1856 WILLIAM BIRD, Surgeon to the Fulham and Hammersmith General Dispensary; 11, George-street, Hanover-sq.

1849 EDMUND LLOYD BIRKETT, M.D., Physician to the City of London Hospital for Diseases of the Chest; 48, Russell-square.

Elected

1851 George Birkett, M.D., Lecturer on Medical Jurisprudence at the Charing Cross Hospital; 1, Gloucester-villas, Highbury New Park.

1851 John Birkett, F.L.S., *Librarian*, Surgeon to, and Lecturer on Surgery at, Guy's Hospital; 59, Green-street, Grosvenor-square. L. 1856. *Trans.* 1.

1846 Hugh Birt, Bognor-on-Sea, Sussex.

1843 Patrick Black, M.D., Assistant-Physician to, and Lecturer on Forensic Medicine at, St. Bartholomew's Hospital; 49, Queen Anne-street, Cavendish-square. C. 1856.

1847 George C. Blackman, M.D., Professor of Surgery in the Medical College of Ohio; New York, U.S.

1839 Richard Blagden, Surgeon-Accoucheur, and Surgeon Extraordinary to H.M. the Queen, and Surgeon in ordinary to H.R.H. the Duchess of Kent; 7, Percy-place, Walcot, Bath. C. 1847-8. *Trans.* 1.

1840 Peyton Blakiston, M.D. F.R.S., St. Leonards-on-Sea.

1845 Henry Blenkinsop, Senior Surgeon to the Warwick Dispensary, Warwick.

1823 Louis Henry Bojanus, M.D., Wilna.

1816 Hugh Bone, M.D., Inspector-Gen. of Hospitals; Edinburgh.

1810 John Kaye Booth, M.D., Principal of Queen's College, and Hon. Physician to the Queen's Hospital, Birmingham; Brush-house, near Sheffield, Yorkshire.

1846 Peter Bossey, Woolwich, Kent.

1846 John Ashton Bostock, Surgeon-Major, Scots Fusilier Guards; 54, Chester-square, Belgravia.

1849 Edward Barons Bowman, M.D.

1841 William Bowman, F.R.S., Surgeon to King's College Hospital, and to the Royal London Ophthalmic Hospital, Moorfields; 5, Clifford-street, Bond-street. C. 1852-3. *Trans.* 3.

1814 Richard Bright, M.D,. D.C.L. F.R.S. Physician Extraordinary to H.M. the Queen, and Consulting Physician to Guy's Hospital; 11, Savile-row, Burlington-gardens. C. 1821-2, 1830, 1833, 1839-40. V.P. 1827-8, 1831-2. P. 1837-8. *Trans.* 4.

Elected

1857 WILLIAM BRINTON, M.D., Physician to the Royal Free Hospital, and Lecturer on Physiology and Forensic Medicine at St. Thomas's Hospital; 20, Brook-street, Grosvenor-square.

1851 BERNARD EDWARD BRODHURST, Assistant Surgeon to the Royal Orthopædic Hospital, and Surgeon to the Hon. Artillery Company; 20, Grosvenor-street. *Trans.* 1; *Pro.* 1.

1813 SIR BENJAMIN COLLINS BRODIE, Bart., D.C.L. F.R.S., Serjeant-Surgeon to H.M. the Queen, Surgeon in Ordinary to H.R.H. the Prince Consort, Foreign Correspondent of the Institute of France, and Foreign Associate of the Imperial Academy of Medicine of Paris; 14, Savile-row, Burlington-gardens. C. 1814-5, 1818-9, 1821-2, 1835-6, 1841-2, 1849. V.P. 1816-7. P. 1839-40. *Trans.* 11.

1844 CHARLES BROOKE, M.A. F.R.S., Surgeon to, and Lecturer on Surgery at, the Westminster Hospital; 29, Keppel-street, Russell-square. C. 1855.

1848 WILLIAM PHILPOT BROOKES, M.D., Surgeon to the Cheltenham General Hospital and Dispensary, and Medical Inspector of Lunatic Asylums for the Upper Division of Gloucestershire; Albion House, Cheltenham.

1847 GEORGE BROWN, Surgeon-Major, Grenadier Guards; the Hospital, Rochester-row, Westminster.

1854 *HENRY BROWN, Surgeon to H.M. the Queen, H.R.H. the Prince Consort, and the Royal Household; Windsor.

1847 *ROBERT BROWN, Winckley-square, Preston, Lancashire.

1857 *ROBERT BROWN, House-Surgeon to the Cumberland Infirmary, Carlisle.

1851 ALEXANDER BROWNE, M.D., Army and Navy Club, St. James's-square; and Twynholm, Kirkcudbright, Scotland.

1827 M. PIERRE BRULATOUR, Surgeon to the Hospital; Bordeaux.

1855 WALTER JOHN BRYANT, 7, Bathurst-street, Hyde-park-gardens.

1823 B. BARTLEY BUCHANAN, M.D.

Elected

1843 JOHN CHARLES BUCKNILL, M.D., Medical Superintendent of the Devon County Lunatic Asylum, Exminster, Devonshire.

1839 GEORGE BUDD, M.D. F.R.S., *Vice-President*, Professor of Medicine in King's College, London: Physician to King's College Hospital; Consulting Physician to the Seamen's Hospital Ship Dreadnought, and to the Blenheim Free Dispensary; 20, Dover-street, Piccadilly. C. 1846-7. *Trans.* 4.

1839 THOMAS HENRY BURGESS, M.D., Military Hospital, Portsmouth.

1853 PATRICK BURKE, 13, Upper Montagu-street, Montagu-square.

1854 PHILIP BURROWES, Royal-crescent, Notting-hill.

1833 GEORGE BURROWS, M.D. F.R.S., Physician to, and Lecturer on Medicine at, St. Bartholomew's Hospital; 18, Cavendish-square. C. 1839-40. T. 1845-7. V.P. 1849-50. *Trans.* 2.

1820 SAMUEL BURROWS.

1837 GEORGE BUSK, F.R.S. F.L.S., Professor of Comparative Anatomy and Physiology at the Royal College of Surgeons; Surgeon to the Seamen's Hospital Ship 'Dreadnought,' 15, Harley-street, Cavendish-square. C. 1847-8. V.P. 1855. *Trans.* 4.

1818 JOHN BUTTER, M.D. F.R.S. F.L.S., Physician Extraordinary to the Plymouth Royal Eye Infirmary; Plymouth.

1851 *WILLIAM CADGE, Assistant-Surgeon to the Norfolk and Norwich Hospital; All Saints, Norwich. *Trans.* 1.

1851 THOMAS CALLAWAY.

1852 *GEORGE CANNEY, Bishop's Auckland, Durham.

1847 JOHN BURFORD CARLILL, M.D., 57, Berners-street.

1825 HARRY W. CARTER, M.D., Consulting Physician to the Kent and Canterbury Hospital; Ashford, Kent.

1853 ROBERT BRUDENELL CARTER, Newthorpe, Nottinghamshire.

1820 SAMUEL CARTWRIGHT, F.R.S. F.L.S., 32, Old Burlington-street, and Nizell's House, near Tunbridge, Kent.

1845 SAMUEL CARTWRIGHT, Jun., Surgeon-Dentist to King's College Hospital, 32, Old Burlington-street.

1839 WILLIAM CATHROW, 42, Weymouth-street, Portland-place.

1845 WILLIAM OLIVER CHALK, 3, Nottingham-terrace, New-road [Marylebone-road.]

Elected

1818 RICHARD CHAMBERLAINE, Kingston, Jamaica.

1844 THOMAS KING CHAMBERS, M.D., Physician to, and Lecturer on Medicine at, St. Mary's Hospital; 1, Hill-street, Berkeley-square. *Trans.* 1.

1849 FREDERICK CHAPMAN, Richmond-green, Surrey.

1837 HENRY THOMAS CHAPMAN, 16, Lower Seymour-street, Portman-square.

1852 GEORGE BORLASE CHILDS, Surgeon-in-Chief to the City Police Force, and Surgeon to the Metropolitan Free Hospital, 11, Finsbury-place South.

1849 WILLIAM FRANCIS CHORLEY, M.D., Senior Physician to the St. Marylebone General Dispensary; 15, Inverness-road, Bayswater.

1842 WILLIAM DINGLE CHOWNE, M.D., Physician to, and Lecturer on Medicine and Midwifery at the Charing Cross Hospital, Corresponding Fellow of the Royal Academy of Surgery of Madrid; 8, Connaught-place-west, Hyde-park. C. 1853-4.

1839 FREDERICK LE GROS CLARK, Surgeon to, and Lecturer on Surgical Anatomy at, St. Thomas's Hospital; Surgeon to the Magdalen Hospital; Consulting Surgeon to the Western General Dispensary, and to the London Female Penitentiary, Pentonville, 24, Spring-gardens. S. 1847-9. V.P. 1855-6. *Trans.* 3.

1845 JOHN CLARK, M.D., Staff Surgeon, 1st Class. Canada.

1848 JOHN CLARKE, L.R.C.P., Physician to the British Lying-in Hospital; 42, Hertford-street, May-fair.

1850 JOSIAH CLARKSON, New Hall-street, Birmingham. *Trans.* 1.

1842 OSCAR MOORE PASSEY CLAYTON, 87, Harley-street.

1853 JOSEPH T. CLOVER, 44, Mortimer-street, Cavendish-square.

1851 EDWARD COCK, Surgeon to, and Lecturer on Clinical Surgery at, Guy's Hospital; 12, St. Thomas's-street, Southwark. C. 1857. *Trans.* 3.

1850 DANIEL WHITAKER COHEN, M.D., Headley-grove, nr. Dorking.

1835 *WILLIAM COLBORNE, Chippenham, Wiltshire.

1818 ROBERT COLE, F.L.S., Holybourne, Hampshire.

1855 FREDERICK COLLINS, M.D., Wanstead, Essex.

1828 JOHN CONOLLY, M.D. D.C.L., Consulting Physician to the Middlesex County Lunatic Asylum, Hanwell, Middlesex.

Elected

1840 *WILLIAM ROBERT COOKE, Burford, Oxfordshire.

1820 BENJAMIN COOPER, Stamford.

1819 GEORGE COOPER, Consulting Surgeon to the Middlesex County Lunatic Asylum; Brentford, Middlesex.

1841 GEORGE LEWIS COOPER, Surgeon to the Bloomsbury Dispensary; 7, Woburn-place, Russell-square.

1843 WILLIAM WHITE COOPER, Senior Surgeon to the North London Eye Infirmary, and to the Honorable Artillery Company, and Ophthalmic Surgeon to, and Lecturer on Ophthalmic Surgery at, St. Mary's Hospital; 19, Berkeley-square.

1854 CHARLES THOMAS COOTE, M.D., Physician to the Great Northern Hospital, King's Cross; 1, Gloucester-place, Hyde-park.

1841 HOLMES COOTE, Assistant-Surgeon to St. Bartholomew's Hospital; 26, New Bridge-street, Blackfriars. S. 1853-4. *Trans.* 1.

1835 GEORGE FORD COPELAND, Cheltenham.

1822 JAMES COPLAND, M.D. F.R.S., Consulting Physician to the Royal Infirmary for Children, and to the Great Northern Hospital, King's Cross; Hon. Fellow of the Royal Academy of Sciences of Sweden, &c.; 5, Old Burlington-street. C. 1831. V.P. 1838-9. P. 1853-4.

1847 JOHN ROSE CORMACK, M.D., Ampthill-square, Hampstead-rd.

1839 *CHARLES CÆSAR CORSELLIS, M.D. F.L.S., late Resident Physician to the Wakefield Lunatic Asylum; Benson, Wallingford, Berkshire.

1853 WILLIAM GILLETT CORY, M.D., Burgh Heath, Sutton, Surrey.

1847 RICHARD PAYNE COTTON, M.D., Physician to the Hospital for Consumption and Diseases of the Chest; 46, Clarges-street, Piccadilly.

1828 WILLIAM COULSON, Senior Surgeon to, and Lecturer on Surgery at, St. Mary's Hospital; 1, Chester-terrace, Regent's-park. C. 1831. L. 1832-7. V.P. 1851-2.

1817 *SIR PHILIP CRAMPTON, Bart, M.D. D.C.L. F.R.S., Surgeon in Ordinary to H.M. the Queen in Ireland, Surgeon-General to the Forces in Ireland, and Member of the Senate at the University of London: Merrion-square, Dublin. *Trans.* 2.

Elected

1841 Mervyn Archdall Nott Crawford, M.D., Wiesbaden; C. 1853-4.

1847 George Critchett, Senior Assistant-Surgeon to, and Lecturer on Surgery at, the London Hospital, and Surgeon to the Royal London Ophthalmic Hospital, Moorfields; 46, Finsbury-square. *Trans.* 1.

1837 John Farrar Crookes, Harewill, near Faversham, Kent.

1849 *William Edward Crowfoot, Beccles, Suffolk.

1851 James Cameron Cumming, M.D., 1, Cadogan-place, Sloane-street.

1846 Henry Curling, Surgeon to the Margate Royal Sea-Bathing Infirmary, and the Ramsgate Seamen's Infirmary; Ramsgate, Kent.

1837 Thomas Blizard Curling, F.R.S., *Treasurer;* Surgeon to, and Lecturer on Surgery at, the London Hospital; 39, Grosvenor-street. S. 1845-6. C. 1850. T. 1854-6. *Trans.* 12; *Pro.* 1.

1847 John Edmund Currey, M.D., Lismore, County Waterford, Ireland.

1836 George Cursham, M.D., *Treasurer;* Physician to the Hospital for Consumption and Diseases of the Chest and to the Female Orphan Asylum; and Inspector of Anatomy for the Provinces; 5, Savile-row, Burlington-gardens. S. 1842-7. C. 1850-1. V.P. 1855. T. 1856.

1822 Christopher John Cusack, Chateau d'Eu, France.

1852 Thomas Cutler, M.D., Acting Physician at the Spa Waters; Spa, Belgium.

1828 Adolphe Dalmas, M.D., Paris.

1836 *James Stock Daniel, Ramsgate, Kent.

1850 John Bampfylde Daniell, M.D.

1820 George Darling, M.D., 6, Russell-square. C. 1841-2.

1818 *Sir Francis Sacheverel Darwin, Knt., M.D., Deputy-Lieutenant of Derbyshire; Breadsall Priory, near Derby.

1848 Henry Daubeny, 40, York-place, Portman-square.

1846 Frederick Davies, 19, Upper Gower-street, Bedford-square.

Elected

1818 HENRY DAVIES, M.D., Consulting-Physician to the British Lying-in Hospital; 6, Duchess-street, Portland-place. C. 1827-8. V.P. 1848-9.

1847 JOHN DAVIES, M.D., Physician Extraordinary to the Hertford General Infirmary, and Visiting Physician to the County Gaol and Lunatic Asylum, Hertford.

1853 ROBERT COKER NASH DAVIES, Rye, Sussex.

1852 WILLIAM DAVIES, M.D., Senior Physician to the Bath United Hospital; 10, Gay-street, Bath.

1852 JOHN HALL DAVIS, M.D., Physician to the Royal Maternity Charity; Physician-Accoucheur to the St. George's and St. James's Dispensary; and Consulting Physician-Accoucheur to the St. Pancras Royal General Dispensary; 11, Harley-street, Cavendish-square.

1820 THOMAS DAVIS, 28, Spring-gardens. C. 1837, 1843.

1818 JAMES DAWSON, Liverpool.

1847 GEORGE EDWARD DAY, M.D. F.R.S., Chandos Professor of Anatomy, and Examiner in Medicine in the University of St. Andrew's.

1846 *SAMUEL BEST DENTON, Ivy Lodge, Hornsea, East Riding, Yorkshire.

1844 ROBERT DICKSON, M.D. F.L.S., Physician to the Scottish Hospital, and to the British Orphan Asylum, Clapham; 16, Hertford-street, May-fair.

1839 JAMES DIXON, *Vice-President;* Surgeon to the Royal London Ophthalmic Hospital, Moorfields; and Consulting Ophthalmic Surgeon to the Asylum for Idiots; 1, Portman-square. L. 1849-55. *Trans.* 4.

1845 JOHN DODD.

1857 ARCHIBALD DOUGLAS, M.D., 8, Clifton-place, Sussex-square, Hyde Park.

1853 ROBERT DRUITT, L.R.C.P., Medical Officer of Health for St. George's, Hanover-square; 39A, Curzon-street, May fair. *Trans.* 2.

1846 JOHN DRUMMOND, Deputy-Inspector of Fleets and Hospitals; Royal Naval Hospital, Chatham. *Trans.* 1.

1843 THOMAS JONES DRURY, M.D., Physician to the Salop Infirmary; Shrewsbury.

Elected

1844 GEORGE DUFF, M.D., Prospect Lodge, Elgin.

1844 EDWARD WILLSON DUFFIN, 14, Langham-place. *Trans.* 1.

1841 ROBERT DUNN, 31, Norfolk-street, Strand. C. 1845-6. *Trans.* 2.

1843 CHRISTOPHER MERCER DURRANT, M.D., Physician to the East Suffolk and Ipswich Hospital; Ipswich, Suffolk.

1839 HENRY SUMNER DYER, M.D., 37, Bryanston-sq. C. 1854-5.

1836 JAMES WILLIAM EARLE, Norwich.

1854 BOOTH EDDISON, Surgeon to the Nottingham General Hospital, and Medical Attendant of Broom House Asylum; Nottingham.

1853 *GEORGE EDWARDES, Wolverhampton. *Trans.* 1.

1821 GEORGE EDWARDS.

1823 CHARLES CHANDLER EGERTON, Kendall Lodge, Epping.

1818 GEORGE VINER ELLIS, Professor of Anatomy in University College, London; 68, Albert-street, Mornington-crescent. *Trans.* 2.

1851 *JAMES ELLISON, M.D., Windsor.

1835 WILLIAM ENGLAND, M.D., Ipswich, Suffolk.

1843 JOHN ERICHSEN, Professor of Surgery in University College, London, and Surgeon to University College Hospital; 48, Welbeck-street, Cavendish-square. C. 1855-6. *Trans.* 2.

1836 GEORGE FABIAN EVANS, M.D., Physician to the General Hospital, Birmingham.

1815 *GRIFFITH FRANCIS DORSETT EVANS, M.D., High-street, Bedford. C. 1838.

1845 WILLIAM JULIAN EVANS, M.D.

1841 ARTHUR FARRE, M.D. F.R.S., Professor of Midwifery in King's College, London, and Physician, for the Diseases of Women and Children, to King's College Hospital; 13, Hertford-street, May-fair. C. 1857.

1841 ROBERT FERGUSON, M.D., Physician Extraordinary to H.M. the Queen, and Consulting Physician to King's College Hospital; 125, Park-street, Grosvenor-square. C. 1839. V.P. 1847.

Elected

1841 WILLIAM FERGUSSON, F.R.S., Surgeon Extraordinary to H.M. the Queen; Surgeon in Ordinary to H.R.H. the Prince Consort; Professor of Surgery in King's College, London, and Surgeon to King's College Hospital; Consulting Surgeon to the Westminister Hospital, and to the Hospital for Consumption; Examiner in Surgery at the University of London; 16, George-street, Hanover-square. C. 1849-50. *Trans.* 4.

1852 *ALFRED GEORGE FIELD, 28, Old Steine, Brighton.

1849 GEORGE TUPMAN FINCHAM, M.D., Physician to, and Lecturer on Medical Jurisprudence at, the Westminster Hospital; 28, Chapel-street, Belgrave-square.

1836 JOHN WILLIAM FISHER, Surgeon-in-Chief to the Metropolitan Police Force; 5, Grosvenor-gate. C. 1843-4.

1838 GEORGE LIONEL FITZMAURICE, 97, Gloucester-place, Portman-square.

1842 THOMAS BELL ELCOCK FLETCHER, M.D., Physician to the General Hospital, Birmingham. *Trans.* 1.

1848 JOHN GREGORY FORBES, 9, Devonport-street, Hyde-park. *Trans.* 2.

1852 JOHN COOPER FORSTER, Assistant-Surgeon to, and Lecturer on Anatomy at, Guy's Hospital; Surgeon to the Royal Infirmary for Children; 11, Wellington-street, Southwark.

1820 THOMAS FORSTER, M.D., Hartfield Lodge, East Grinstead.

1856 JOHN F. FRANCE, Lecturer on Ophthalmic Surgery, and Surgeon to the Eye Infirmary, at Guy's Hospital; 24, Bloomsbury-square.

1816 JOHN W. FRANCIS, M.D., Professor of Materia Medica in the University of New York, U.S.

1841 JOHN CHRISTOPHER AUGUSTUS FRANZ, M.D., 11, Old Steine, Brighton.

1843 PATRICK FRASER, M.D., Physician to the London Hospital, and to the London Dispensary; 61, Grosvenor-street.

1836 JOHN GEORGE FRENCH, Surgeon to the St. James's Infirmary; 41, Great Marlborough-street. C. 1852-3.

Elected

1849 ROBERT TEMPLE FRERE, M.A., Physician-Accoucheur to, and Lecturer on Midwifery at, the Middlesex Hospital; 9, Queen-street, May-fair.

1846 HENRY WILLIAM FULLER, M.D., Physician to, and Lecturer on Medical Jurisprudence at, St. George's Hospital; 13, Manchester-square. *Trans.* 1.

1815 *GEORGE FREDERICK FURNIVAL, Medical Attendant and Proprietor, Great Foster House Asylum for Lunatics; Egham, Surrey.

1854 ALFRED BARING GARROD, M.D., Professor of Materia Medica, Therapeutics, and Clinical Medicine in University College, London, and Physician to University College Hospital; 84, Harley-street, Cavendish-square. *Trans.* 5.

1857 GEORGE GREEN GASCOYEN, Demonstrator of Anatomy in St. Mary's Hospital Medical School; 25, Oxford-terrace, Hyde-park. *Trans.* 1.

1851 GEORGE GASKOIN, 3, Westbourne-park.

1819 JOHN SAMUEL GASKOIN, F.L.S., 32, Clarges-street, Piccadilly. C. 1836.

1819 HENRY GAULTER.

1848 JOHN GAY, Surgeon to the Great Northern Hospital; 10, Finsbury-place-south.

1821 *RICHARD FRANCIS GEORGE, Senior Surgeon to the Bath General Hospital; 10, Royal Crescent, Bath.

1854 BERNARD GILPIN, Belle Vue House, Ulverstone, Lancashire.

1851 STEPHEN JENNINGS GOODFELLOW, M.D., Assistant-Physician to, and Lecturer on Medicine at, the Middlesex Hospital; 4, Russell-square.

1818 JAMES ALEXANDER GORDON, M.D. C.B. F.R.S., Burford-lodge, Box-hill. C. 1828. V.P. 1829. *Trans.* 1.

1851 PETER YEAMES GOWLLAND, Demonstrator of Practical Anatomy at the London Hospital Medical College, and Assistant-Surgeon to St. Mark's Hospital; 34, Finsbury-square.

1844 JOHN GRANTHAM, Crayford, Kent.

1850 HENRY GRAY, F.R.S., Lecturer on Anatomy at St. George's Hospital Medical School, and Surgeon to the St. George's and St. James's Dispensary; 8, Wilton-street, Grosvenor-place. *Trans.* 2.

Elected

1846 George Thompson Gream, M.D., 2, Upper Brook-street, Grosvenor-square.

1816 Joseph Henry Green, D.C.L. F.R.S., Vice-President of the Royal College of Surgeons; Consulting Surgeon to St. Thomas's Hospital; Hadley, Middlesex. C. 1820. V.P. 1830. *Trans.* 1.

1843 Robert Greenhalgh, M.D., Consulting Physician-Accoucheur to the St. John's Wood Dispensary; 11, Upper Woburn-place, Russell-square.

1814 John Grove, M.D., Salisbury.

1852 John Grove, High-street, Wandsworth, Surrey.

1849 William Withey Gull, M.D., Senior Assistant-Physician to, and Lecturer on Medicine at, Guy's Hospital, and Member of the Senate of the University of London; 8, Finsbury-square. *Trans.* 2.

1837 James Manby Gully, M.D., Holyrood House, Great Malvern, Worcestershire.

1819 John Gunning, C.B., Inspector-General of Hospitals; Paris. C. 1823.

1842 Charles William Gardiner Guthrie, Surgeon to the Royal Westminster Ophthalmic Hospital; 18, Pall Mall East.

1854 Samuel Osborne Habershon, M.D., Assistant-Physician to, and Lecturer on Materia Medica and Therapeutics at, Guy's Hospital; 22, Wimpole-street, Cavendish-square.

1849 Hammett Hailey, Newport Pagnell, Bucks.

1852 Robert James Hale, M.D., 5, Upper Seymour-street, Portman-square.

1845 Sir John Hall, M.D. K.C.B., Inspector-General of Hospitals.

1848 Alexander Halley, M.D. F.G.S., Physician to the Blenheim-street, Dispensary; 7, Harley-street, Cavendish-square.

1819 Thomas Hammerton, 34, Clarges-street, Piccadilly. C. 1829-30.

1838 Henry Hancock, Surgeon to, and Lecturer on Surgery at, the Charing Cross Hospital, and Surgeon to the Royal Westminster Ophthalmic Hospital; 37, Harley-street, Cavendish-square. C. 1851.

Elected

1849 *Richard James Hansard, Surgeon to the Radcliffe Infirmary; 5, Broad-street, Oxford.

1848 *George Harcourt, M.D., Chertsey, Surrey.

1836 John Fosse Harding, 6, Mylne-street, Myddelton-square.

1856 Charles J. Hare, M.D., Assistant-Physician to University College Hospital; 41, Brook-street, Grosvenor-square.

1857 George Harley, M.D. F.C.S., Lecturer on Practical Physiology and Histology, in University College, London; 40, Somerset-street, Portman-square.

1843 Thomas Sunderland Harrison, M.D. F.L.S., Garston House, Frome, Somersetshire.

1846 John Harrison, 2, the Court-yard, Albany.

1841 William Harvey, Surgeon to the Royal Dispensary for Diseases of the Ear, and to the Freemasons' Female Charity, and Aural Surgeon to the Great Northern Hospital; 2, Soho-square. C. 1854.

1853 Arthur Hill Hassall, M.D. F.L.S., Physician to the Royal Free Hospital; 8, Bennett-street, St. James's. *Trans.* 1.

1855 Alfred Haviland, Surgeon to the Cannington Dispensary; Bridgewater, Somerset.

1828 Cæsar Henry Hawkins, F.R.S., Surgeon Extraordinary to H.M. the Queen, and Senior Surgeon to St. George's Hospital; 26, Grosvenor-street. C. 1830-1. V.P. 1838-9. T. 1841-4. P. 1855-6. *Trans.* 12.

1838 Charles Hawkins, Consulting Surgeon to Queen Charlotte's Hospital; 22, Savile-row, Burlington-gardens. C. 1846-7. S. 1850.

1848 Thomas Hawksley, M.D., Physician to the Margaret-street Dispensary for Consumption and Diseases of the Chest; 26, George-street, Hanover-square.

1820 Thomas Emerson Headlam, M.D., Consulting Physician to the Infirmary, Newcastle-upon-Tyne.

1848 *James Newton Heale, M.D., Physician to the Winchester County Hospital; Winchester.

1850 George Heaton, M.D., Boston, U.S.

1829 Thomas Heberden, M.D., 72, Park-street, Grosvenor-square.

1844 John Hennen, M.D. L. 1848-50.

Elected

1849 Amos Henriques, M.D., Hon. Physician to the Spanish Embassy; 67, Upper Berkeley-street, Portman-square.

1848 Mitchell Henry, Assistant-Surgeon to, and Lecturer on Medical Jurisprudence at, the Middlesex Hospital, Surgeon to the North London Eye Infirmary; 5, Harley-street, Cavendish-square. *Trans.* 2.

1821 Vincent Herberski, M.D., Professor of Medicine in the University of Wilna.

1843 Prescott Gardner Hewett, Professor of Anatomy and Surgery at the Royal College of Surgeons; Assistant-Surgeon to St. George's Hospital; 35, Hertford-street, May-fair. *Trans.* 7.

1855 W. M. Graily Hewitt, M.D., Assistant-Physician to the Samaritan Free Hospital for Women and Children; Lecturer on Comparative Anatomy and Zoology at St. Mary's Hospital; 17, Radnor-place, Hyde-park.

1853 Thomas Hewlett, Surgeon to Harrow School; Harrow. *Trans.* 1.

1841 *Nathaniel Highmore, Sherborne, Dorsetshire.

1814 *William Hill, Wootton-under-Edge, Gloucestershire.

1854 Thomas Hillier, M.D., Medical Officer of Health for St. Pancras; 21, Upper Gower-street.

1842 William Augustus Hillman, Senior Assistant-Surgeon to, and Lecturer on Anatomy and Physiology at, the Westminster Hospital; 1, Argyll-street, Regent-street.

1841 John Hilton, F.R.S., Surgeon to, and Lecturer on Surgery at, Guy's Hospital, and Consulting-Surgeon to the St. Pancras Royal General Dispensary; 10, New Broad-street, City. C. 1851. *Trans.* 3.

1848 Martin Thomas Hiscox, M.D., Bath, Somersetshire.

1840 Thomas Hodgkin, M.D., Consulting Physician to the Hospital for Diseases of the Skin, and Member of the Senate at the University of London; 35, Bedford-square. C. 1842-3. *Trans.* 6.

1813 Joseph Hodgson, F.R.S., 60, Westbourne-terrace, Hyde Park-gardens. C. 1817. P. 1851-2. *Trans.* 1.

1835 Thomas Henry Holbeeton, Hampton, Middlesex. *Trans.* 2.

Elected

1843 LUTHER HOLDEN, Demonstrator of Anatomy at St. Bartholomew's Hospital, and Surgeon to the Metropolitan Dispensary; 54, Gower-street, Bedford-square.

1814 SIR HENRY HOLLAND, Bart., M.D., D.C.L., LL.D. F.R.S., Physician to H.M. the Queen, and Physician in Ordinary to H.R.H. the Prince Consort; 25, Brook-street, Grosvenor-square. C. 1817, 1833-4. V.P. 1826, 1840. *Trans.* 1.

1856 TIMOTHY HOLMES, Curator of the Pathological Museum of St. George's Hospital; 39, Curzon-street, May Fair.

1846 BARNARD WIGHT HOLT, Senior Surgeon to, and Lecturer on Clinical Surgery at, the Westminster Hospital; Medical Officer of Health for Westminster; 5, Parliament-street.

1846 CARSTEN H. HOLTHOUSE, Surgeon to, and Lecturer on Anatomy at, the Westminster Hospital; Surgeon to the South London Ophthalmic Hospital; 2, Storey's-gate, St. James's-park.

1853 WILLIAM CHARLES HOOD, M.D., Resident Physician and Medical Superintendent of Bethlem Hospital.

1828 *EDWARD HOWELL, M.D., Senior Consulting Physician to the Swansea Infirmary; Swansea, Glamorganshire.

1857 EDWARD CHARLES HULME, Assistant-Surgeon to the Central Ophthalmic Hospital, and Surgeon to the Blenheim-street Dispensary; 19, Gower-street, Bedford-square.

1844 EDWIN HUMBY, 1, Windsor-terrace, Maida-hill.

1855 GEORGE MURRAY HUMPHRY, Surgeon to, and Lecturer on Surgery at, Addenbrooke's Hospital, Cambridge. *Trans.* 1,

1840 HENRY HUNT, M.D., 68, Brook-street, Hanover-square. *Trans.* 2.

1842 CHRISTOPHER HUNTER, Downham, Norfolk.

1849 EDWARD LAW HUSSEY, Surgeon to the Radcliffe Infirmary, Oxford. *Trans.* 1.

1856 JONATHAN HUTCHINSON, Surgeon to the Metropolitan Free Hospital; 14, Finsbury-circus. *Pro.* 1.

1820 WILLIAM HUTCHINSON, M.D.

1840 CHARLES HUTTON, M.D., Physician to the Royal Infirmary for Children and to the General Lying-in Hospital; 26, Lowndes-street, Belgrave-square.

Elected

1847 WILLIAM EDMUND IMAGE, Surgeon to the Suffolk General Hospital; Bury St. Edmund's, Suffolk. *Trans.* 1.

1856 CORNELIUS INGLIS, M.D., House-Surgeon, Taunton Hospital, Taunton, Somerset.

1826 WILLIAM INGRAM, Midhurst, Sussex.

1845 *HENRY JACKSON, Senior Surgeon to the Sheffield General Infirmary; St. James's-row, Sheffield, Yorkshire.

1841 PAUL JACKSON, 24, Wimpole-street, Cavendish-square.

1847 THOMAS REYNOLDS JACKSON, 28, Charles-street, St. James's.

1841 MAXIMILIAN MORITY JACOBOVICZ, M.D., Pesth.

1825 JOHN B. JAMES, M.D.

1847 *WILLIAM WITHALL JAMES, Surgeon to the Exeter Dispensary, Exeter, Devonshire.

1844 SAMUEL JOHN JEAFFRESON, M.D., Physician to the Warneford Hospital and Warwick Dispensary, Leamington, Warwickshire.

1839 JULIUS JEFFREYS, F.R.S., Kingston, Surrey.

1840 *GEORGE SAMUEL JENKS, M.D., late Physician to the Sussex County Hospital, Brighton.

1851 WILLIAM JENNER, M.D., Professor of Pathological Anatomy in University College, London, and Physician to University College Hospital; Physician to the Hospital for Sick Children; 8, Harley-street, Cavendish-square. *Trans.* 2.

1848 ATHOL ARCHIBALD WOOD JOHNSON, Lecturer on Anatomy and Physiology at St. George's Hospital Medical School, and Surgeon to the Hospital for Sick Children; 37, Albemarle-street. *Trans.* 1.

1851 EDMUND CHARLES JOHNSON, M.D., Corresponding Member of the Imperial Society of Florence; 6, Savile-row, and 20, Arlington-street.

1821 SIR EDWARD JOHNSON, M.D., Weymouth, Dorsetshire.

1847 GEORGE JOHNSON, M.D., Physician to King's College Hospital, and Professor of Materia Medica and Therapeutics at King's College; 3, Woburn-square. *Trans.* 3.

1837 HENRY CHARLES JOHNSON, Surgeon to St. George's Hospital; 6, Savile-row, Burlington-gardens. C. 1850-1.

1844 JOHN JOHNSTON.

Elected

1853 HENRY JONES, 23, Soho-square.

1844 HENRY BENCE JONES, M.D., F.R.S., Physician to St. George's Hospital; 31, Brook-street, Grosvenor-square. C. 1855-6. *Trans.* 11.

1835 HENRY DERVICHE JONES, 23, Soho Square. C. 1854-5.

1853 THOMAS WHARTON JONES, F.R.S., Professor of Ophthalmic Surgery in University College, London, and Ophthalmic Surgeon to University College Hospital; 35, George-street, Hanover-square. *Trans.* 1.

1837 THOMAS WILLIAM JONES, M.D., Physician to the City Dispensary; 19, Finsbury-pavement.

1829 *GEORGE CHARLES JULIUS, Richmond, Surrey.

1816 *GEORGE HERMANN KAUFFMANN, M.D., Hanover.

1848 *DANIEL BURTON KENDELL, M.D., Senior Physician to the Wakefield Dispensary, Kettlethorpe Hall, Wakefield, Yorkshire.

1847 ALFRED KEYSER, 21, Norfolk-crescent, Oxford-square.

1857 HENRY WALTER KIALLMARK, late Staff Surgeon, 2d class, attached to the Ottoman Army; 32A, Fitzroy Square.

1839 *DAVID KING, M.D., Medical Officer of Health for Eltham, Eltham, Kent.

1851 JOHN ABERNETHY KINGDON, Surgeon to the City Dispensary; 2, New Bank-buildings, City.

1840 SAMUEL ARMSTRONG LANE, Surgeon to, and Lecturer on Anatomy at, St. Mary's Hospital, Surgeon to the Lock Hospital; 1, Grosvenor-place. C. 1849-50

1855 JAMES ROBERT LANE, Surgeon to, and Lecturer on Anatomy and Physiology at, St. Mary's Hospital; and Assistant-Surgeon to the Lock and St. Mark's Hospitals; 1, Grosvenor-place.

1841 *CHARLES LASHMAR, M.D., 83, North End, Croydon, Surrey.

1816 G. E. LAWRENCE.

1809 WILLIAM LAWRENCE, F.R.S., Surgeon Extraordinary to H. M. the Queen; Surgeon to, and Lecturer on Surgery at, St. Bartholomew's Hospital, and Surgeon to Bridewell and Bethlem Hospital, Foreign Associate of the Imperial Academy of Medicine of Paris; 18, Whitehall-place. S. 1813-7. V.P. 1818-9. T. 1821-6. P. 1831-2. C. 1820, 1833-4, 1842-3. *Trans.* 18.

Elected

1840 Thomas Laycock, M.D. F.R.S.E., Professor of the Practice of Medicine in the University of Edinburgh, and Physician to the Edinburgh Royal Infirmary: 4, Rutland Street, Edinburgh.

1843 *Jesse Leach, Heywood, near Bury, Lancashire.

1823 John G. Leath, M.D.

1822 John Joseph Ledsam, M.D.

1823 Henry Lee, M.D. F.L.S., Weather Oak, Alvechurch, near Bromsgrove, Worcestershire. C. 1837. S. 1839-40.

1843 Henry Lee, Surgeon to King's College and the Lock Hospitals; 9, Savile-row, Burlington-gdns. C. 1856-7. *Trans.* 2; *Pro.* 1.

1822 Robert Lee, M.D. F.R.S., Physician to the British Lying-in Hospital; Obstetric Physician to, and Lecturer on Midwifery at, St. George's Hospital; and Corresponding Member of the Imperial Academy of Medicine, Paris; 4, Savile-row, Burlington-gardens. C. 1829, 1834. S. 1830-3. V.P. 1835. *Trans.* 19.

1836 Frederick Leighton, M.D., Frankfort-on-the-Maine.

1854 Hananel de Leon, M.D., 2, Hampden-villas, Sandgate-road, Folkestone.

1856 David Lewis, M.D., Physician to the Royal General Dispensary, Bartholomew Close, and to the Royal Society of Ancient Britons' Schools; 23, Finsbury-place.

1847 Sir John Liddell, M.D. C.B. F.R.S., Director-General of the Medical Department of the Navy; Somerset House.

1806 John Lind, M.D.

1845 William John Little, M.D., Physician to the London Hospital; 34, Brook-street, Grosvenor-square.

1819 Robert Lloyd, M.D.

1824 Eusebius Arthur Lloyd, Surgeon to St. Bartholomew's and Christ's Hospitals; 14, Bedford-row. S. 1827-8. V.P. 1838. C. 1843-4. *Trans.* 2.

1820 J. G. Locher, M.C.D., Town Physician of Zurich. *Trans.* 2.

1824 Sir Charles Locock, Bart., M.D., *President*, First Physician-Accoucheur to H.M. the Queen, and Consulting Physician to the General Lying-in Hospital; Member of the Senate of the University of London; 26, Hertford-st. May-fair. C. 1826. V.P. 1841. *Trans.* 1.

Elected

1852 CHARLES LODGE, M.D.

1846 HENRY THOMAS LOMAX, Surgeon to the 2d Staffordshire Militia, Stafford.

1836 JOSEPH S. LÖWENFELD, M.D., Berbice.

1815 *PETER LUARD, M.D.

1852 JAMES LUKE, F.R.S., Senior Surgeon to the London Hospital; and Surgeon to St. Luke's Hospital for Lunatics; 37, Broad-street-buildings, City. *Trans.* 4.

1857 FELIX WILLIAM LYON, M.D., Purley Park, near Reading, Berks.

1846 WILLIAM M'EWEN, M.D., Surgeon to Chester Castle; Nicholas-street, Chester.

1814 SIR JAMES MACGRIGOR, Bart., M.D. K.C.B. K.T.S. LL.D. F.R.S., Physician Extraordinary to H.M. the Queen, late Director-General of the Medical Department of the Army; 3, Harley-street, Cavendish-square. C. 1820, 1834-5. V.P. 1815-16. *Trans.* 1.

1823 GEORGE MACILWAIN, Consulting Surgeon to the Finsbury Dispensary and the St. Anne's Society Schools; 3, Court-yard, Albany. C. 1829-30. V.P. 1848. *Trans.* 1.

1848 FREDERICK WILLIAM MACKENZIE, M.D., Physician to the Western General Dispensary; 11, Chester-place, Hyde-park-square. *Trans.* 1.

1818 WILLIAM MACKENZIE, M.D. Surgeon-Oculist to H.M. the Queen in Scotland, and Surgeon to the Eye Infirmary, Glasgow; Buchanan-street, Glasgow. *Trans.* 2.

1854 *DRAPER MACKINDER, M.D., Consulting Surgeon to the Dispensary, Gainsborough, Lincolnshire.

1822 RICHARD MACINTOSH, M.D.

1844 DANIEL MACLACHLAN, M.D., Physician to the Royal Hospital, Chelsea, and Deputy-Inspector-General of Hospitals; Royal Hospital, Chelsea. *Trans.* 1.

1851 SAMUEL MACLEAN, 10, Conduit-street, Bond-street.

1849 DUNCAN MACLACHLAN MACLURE, 16, Harley-street, Cavendish-square.

1842 JOHN MACNAUGHT, M.D., Bedford-street, Liverpool.

Elected

1837 ANDREW MELVILLE M'WHINNIE, Assistant-Surgeon to, and Lecturer on Comparative Anatomy at, St. Bartholomew's Hospital: and Assistant-Surgeon to the London Hospital for Diseases of the Skin, Blackfriars; 5, Crescent, New Bridge-street, Blackfriars. C. 1851-2. *Trans.* 1.

1855 WILLIAM MARCET, M.D., F.R.S., Assistant-Physician to, and Lecturer on Physiological and Pathological Chemistry at, the Westminster Hospital; 36, Chapel-street, Belgrave-square.

1848 WILLIAM ORLANDO MARKHAM, M.D., Physician to, and Lecturer on Pathological Anatomy at, St. Mary's Hospital; 33, Clarges-street, Piccadilly. *Trans.* 1.

1824 SIR HENRY MARSH, Bart., M.D., Physician to H.M. the Queen in Ireland, Consulting Physician to the City of Dublin Hospital, and Physician to Steevens's Hospital; 9, Merrion-square North, Dublin.

1838 THOMAS PARR MARSH, M.D., Consulting Physician to the Salop Infirmary, Shrewsbury.

1851 JOHN MARSHALL, F.R.S., Assistant-Surgeon to University College Hospital; 10, Savile-row, Burlington-gardens. *Trans.* 2.

1841 JAMES RANALD MARTIN, F.R.S., 71A, Grosvenor-st. C. 1853.

1849 GEORGE BELLASIS MASFEN, Surgeon to St. Mary's Hospital, Manchester; 78, Oxford-street, Manchester.

1853 WILLIAM EDWARD MASFEN, Surgeon to the Staffordshire General Infirmary, Stafford.

1818 J. P. MAUNOIR, Professor of Surgery at Geneva. *Trans.* 4.

1837 THOMAS MAYO, M.D. F.R.S., President of the Royal College of Physicians, and Honorary Physician to the St. Marylebone Infirmary; 56, Wimpole-street, Cavendish square. S. 1841. C. 1847-8. V.P. 1851-2.

1839 RICHARD HENRY MEADE, Senior Surgeon to the Bradford Infirmary, Bradford, Yorkshire. *Trans.* 1.

1837 SAMUEL WILLIAM JOHN MERRIMAN, M.D., Physician to the Royal Infirmary for Children; Consulting Physician to the Westminster General Dispensary; and Physician-Accoucheur to the Western General Dispensary; 3, Charles-street, Westbourne-terrace. C. 1851-2. *Trans.* 1.

Elected

1852 James Merryweather, 57, Brook-street, Grosvenor-square.

1847 Edward Meryon, M.D., 14, Clarges-street, Piccadilly. *Trans.* 1.

1815 Augustus Meyer, M.D., St. Petersburgh.

1840 Richard Middlemore, Consulting Surgeon to the Birmingham Eye Infirmary; Temple Row, Birmingham.

1854 Edward Archibald Middleship, Richmond, Surrey.

1818 *Patrick Miller, M.D. F.R.S.E., Senior Physician to the Devon and Exeter Hospital, and to St. Thomas's Hospital for Lunatics; The Grove, Exeter, Devonshire.

1852 James Monro, M.D., Surgeon-Major, Coldstream Guards; Vincent-square, Westminster. *Trans.* 1.

1844 Nathaniel Montefiore, 36, Hyde-park-gardens.

1848 Charles Hewitt Moore, Surgeon to, and Lecturer on Anatomy at, the Middlesex Hospital; 35, Montague-place, Russell-square. *Trans.* 2.

1836 George Moore, M.D., late Physician to the Hastings Dispensary; Brighton.

1857 John Morgan, 5, Albion-place, Hyde Park-square.

1854 George Moseley.

1851 Frederick John Mouat, M.D., Professor of Medicine in the Medical College of Calcutta, and Secretary of the Council of Education in India; Calcutta.

1814 *George Frederick Muhry, M.D., Hanover.

1856 Charles Murchison, M.D., Assistant-Physician to King's College Hospital, and to the London Fever Hospital; 31, Sackville-street, Piccadilly.

1847 Simon Murchison, Bicester, Oxon.

1845 Thomas D. Mütter, M.D., Emeritus Professor of Surgery, in Jefferson Medical College; Philadelphia.

1840 Robert Nairne, M.D., Commissioner in Lunacy; 44, Charles-street, Berkeley-square. C. 1848-9. T. 1852-3. *Trans.* 1.

1835 Thomas Andrew Nelson, M.D., 10, Nottingham-terrace, York-gate, Regent's-park [Marylebone-road.]

1843 Edward Newton, 30, Fitzroy-square.

1851 James Nichols, 13, Savile-row, Burlington-gardens.

Elected

1819 *George Norman, Consulting Surgeon to the Bath United Hospital, and Surgeon to the Puerperal Charity; Circus, Bath. *Trans.* 3.

1849 Henry Burford Norman, Portland Lodge, Southsea, Hants.

1845 Henry Norris, South Petherton, Somerset.

1847 *William Edward Charles Nourse, Eltham, Kent.

1849 *Arthur Noverre, Great Stanmore, Middlesex.

1847 Thomas O'Connor, March, Cambridgeshire.

1843 William O'Connor, M.D., Physician to the Royal Free Hospital; 30, Upper Montagu-street, Montagu-square.

1846 Francis Odling, 52, Devonshire-street, Portland-Place.

1855 William Ogle, M.D., Physician to the Royal Pimlico Dispensary; 9, Lower Belgrave-street, Belgrave-square.

1850 Henry Oldham, M.D., Obstetric Physician to, and Clinical Lecturer on Midwifery at, Guy's Hospital; and Obstetric Physician to the Tower Hamlets Dispensary; 26, Finsbury-square. *Trans.* 1.

1842 William Piers Ormerod.

1846 *Edward Latham Ormerod, M.D., Physician to the Sussex County Hospital; 12, Old Steine, Brighton. *Trans.* 2.

1847 *William Bousfield Page, Surgeon to the Cumberland Infirmary; Carlisle. *Trans.* 2.

1840 James Paget, F.R.S., Assistant-Surgeon to, and Lecturer on General and Morbid Anatomy and Physiology at, St. Bartholomew's Hospital; 24, Henrietta-street, Cavendish-square. C. 1848-9. *Trans.* 8.

1806 *Robert Paley, M.D., Bishopston Grange, near Ripon, Yorkshire.

1836 S. W. Langston Parker, Surgeon to the Queen's Hospital, Birmingham; Colmore-row, Birmingham.

1847 Nicholas Parker, M.D., Assistant-Physician to, and Lecturer on Medicine at, the London Hospital; 22, Finsbury-square.

1841 John Parkin, M.D., Paris.

1851 James Part, 7, Camden-road-villas, Camden-town.

Elected

1828 RICHARD PARTRIDGE, F.R.S., Surgeon to King's College Hospital, and Professor of Anatomy in King's College, London; 17, New-street, Spring-gardens. S. 1832-6. C. 1837-8. V.P. 1847-8.

1845 THOMAS BEVILL PEACOCK, M.D., Assistant-Physician to, and Lecturer on Materia Medica at, St. Thomas's Hospital; Physician to the City of London Hospital for Diseases of the Chest, Victoria-park; 20, Finsbury-circus. S. 1855-6. *Trans.* 2.

1856 RICHARD KING PEIRCE, Surgeon in Diseases of Women and Children to the Blenheim-street Dispensary; 16, Norland-place, Notting-hill.

1830 CHARLES P. PELECHIN, M.D., St. Petersburgh.

1855 *OLIVER PEMBERTON, Surgeon to the Birmingham General Hospital, and Demonstrator of Anatomy at Queen's College; 11, Temple-row, Birmingham.

1844 WILLIAM VESALIUS PETTIGREW, M.D., Surgeon to the Female Orphan Asylum, Lambeth; 7, Chester-street, Grosvenor-place.

1837 BENJAMIN PHILLIPS, F.R.S., Brentbridge House, Hendon, Middlesex. L. 1841-5. T. 1847-50. V.P. 1853. *Trans.* 4.

1814 *EDWARD PHILLIPS, M.D., Consulting Physician to the Hants County Hospital; Winchester, Hampshire.

1848 EDWARD PHILLIPS, M.D., F.L.S., Physician to the Coventry and Warwickshire Hospital; Coventry, Warwickshire.

1852 RICHARD PHILLIPS, Winchester-place, Pentonville [68, Pentonville-road.]

1854 THOMAS BACON PHILLIPS, 36, Lansdown-place, Brighton.

1846 FRANCIS RICHARD PHILP, M.D., Nice.

1851 *JAMES HOLLINS PICKFORD, M.D. M.R.I.A., 1 Cavendish-place, Brighton.

1851 JOHN PICTON, M.D.

1836 ISAAC PIDDUCK, M.D., Physician to the Bloomsbury Dispensary; 22, Montague-street, Russell-square. *Pro.* 1.

1852 HENRY PILLEAU, Staff Surgeon, 1st Class; 21, Kensington-square.

Elected

1841 HENRY ALFRED PITMAN, M.D., Physician to, and Lecturer on Medicine at, St. George's Hospital; 28, Montague-place, Russell-square. L. 1851-3.

1850 ALFRED POLAND, Assistant-Surgeon to Guy's Hospital, and Surgeon to the Royal London Ophthalmic Hospital, Moorfields; 10, Bolton-row, Curzon-street, May Fair.

1845 GEORGE DAVID POLLOCK, Assistant-Surgeon to, and Lecturer on Anatomy at, St. George's Hospital; 27, Grosvenor-street. C. 1856-7. *Trans.* 1.

1843 CHARLES POPE, M.D. F.L.S., Glastonbury, Somersetshire.

1846 JEPHSON POTTER, M.D. F.L.S., Oxford-road, Manchester.

1842 JAMES POWELL, M.D., 77, Guildford-street, Russell-square.

1851 ROBERT FRANCIS POWER, M.D., 7, Lower Grosvenor-place.

1857 WILLIAM OVEREND PRIESTLEY, M.D., Physician-Accoucheur to the St. Marylebone Infirmary, and to the St. George's and St. James's Dispensary; 31, Somerset-street, Portman-square.

1839 JOHN PROPERT, Consulting-Surgeon to the Society of Ancient Britons; 6, New Cavendish-street, Portland-place.

1845 JOHN PYLE, late Surgeon to the North London Eye Infirmary; 56, Oxford-terrace, Hyde-park.

1816 SIR WILLIAM PYM, M.D., K.G.H., Inspector of Hospitals, and Superintendent-General of Quarantine in the United Kingdom.

1830 JONES QUAIN, M.D., Paris.

1850 RICHARD QUAIN, M.D., Physician to the Hospital for Consumption and Diseases of the Chest; 23, Harley-street, Cavendish-square. *Trans.* 1.

1835 RICHARD QUAIN, F.R.S., *Vice-President*, Professor of Clinical Surgery in University College, London, and Surgeon to University College Hospital; Consulting Surgeon to the Eye Infirmary attached to the Hospital; 32, Cavendish-square. C. 1838-9. L. 1846-8. T. 1851-3. 1856. *Trans.* 1., *Pro.* 2.

1852 CHARLES BLAND RADCLIFFE, M.D., Physician to, and Lecturer on Materia Medica at, the Westminster Hospital; 4, Henrietta-street, Cavendish-square.

1857 HENRY RANKE, M.D., 21, Fitzroy-square.

Elected

1854 WILLIAM HENRY RANSOM, M.D., Physician to the General Hospital; Nottingham.

1821 HENRY REEDER, M.D., Ridge House, Chipping, Sudbury.

1857 GEORGE OWEN REES, M.D. F.R.S., Physician to, and Lecturer on Medicine at, Guy's Hospital; Examiner in Materia Medica at the University of London; 26, Albemarle-street, Piccadilly. *Trans.* 1.

1835 G. REGNOLI, Professor of Surgery in the University of Pisa.

1855 JOHN RUSSELL REYNOLDS, M.D., Assistant-Physician to the Westminster Hospital, and to the Hospital for Sick Children; 38, Grosvenor-street.

1847 SAMUEL RICHARDS, M.D., 36, Bedford-square.

1852 CHRISTOPHER THOMAS RICHARDSON, M.B., Physician to the Metropolitan Free Hospital; 16, Hinde-street, Manchester-square.

1829 SIR JOHN RICHARDSON, Knt., M.D. C.B. F.R.S., Inspector of Hospitals and Fleets; Lancrigg, Grasmere, Westmoreland.

1849 *WILLIAM RICHARDSON, M.D., 9, Ephraim-road, Tunbridge Wells, Kent.

1845 BENJAMIN RIDGE, M.D., 21, Bruton-street, Berkeley-square.

1843 JOSEPH RIDGE, M.D., 39, Dorset-square.

1852 CHARLES RIDLEY, Surgeon to the Royal Society for Protection of Life from Fire; 6, Charlotte-street, Bedford-sq.

1852 JOHN ROBERTS, M.D., 75, Grosvenor-street.

1829 *ARCHIBALD ROBERTSON, M.D. F.R.S., Hon. Physician to the Northampton General Infirmary, Northampton.

1855 CHARLES ALEXANDER LOCKHART ROBERTSON, M.D., Hon. Secretary to the Association of Medical Officers of Asylums and Hospitals for the Insane; 1, Charles-street, Berkeley-square.

1857 JOHN GEORGE ROBERTSON, Exminster, Devonshire.

1843 GEORGE ROBINSON, M.D., Physician to the Newcastle-on-Tyne Dispensary; Newcastle-on-Tyne. *Trans.* 2.

1843 WILLIAM RODEN, M.D. F.L.S., the Grange, Kidderminster, Worcestershire.

1835 GEORGE HAMILTON ROE, M.D., Senior Physician to the Hospital for Consumption and Diseases of the Chest; 57, Park-street, Grosvenor-square. C. 1841-2. *Trans.* 1.

Elected

1836 ARNOLD ROGERS, Consulting Surgeon-Dentist to St. Bartholomew's Hospital; 16, Hanover-square.

1846 WILLIAM RICHARD ROGERS, M.D., Physician to the Farringdon General Dispensary; 56, Berners-street.

1819 HENRY SHUCKBURGH ROOTS, M.D., Consulting Physician to St. Thomas's Hospital; 2, Russell-square. C. 1833, 1845. V.P. 1834-5. *Trans.* 1.

1829 WILLIAM SUDLOW ROOTS, F.L.S., Surgeon to H.M.'s Establishment at Hampton Court and to the Kingston Dispensary; Kingston, Surrey.

1850 GEORGE ROPER, 180, Shoreditch.

1836 RICHARD ROSCOE, M.D.

1855 THOMAS TATTERSALL ROSCOW, M.D., Physician to the Chelsea, Brompton, and Belgrave Dispensary; 1, Sumner-place, Brompton.

1836 *CALEB BURRELL ROSE, F.G.S., Swaffham, Norfolk. *Trans.* 1.

1849 CHARLES HENRY FELIX ROUTH, M.D., Physician to the St. Pancras Royal General Dispensary; 52, Montagu-square. *Trans.* 1.

1845 HENRY MORTIMER ROWDON, Member of the Court of Examiners of the Society of Apothecaries; 29, Nottingham-place, York-gate, Regent's-park [Marylebone-road].

1834 HENRY WILLIAM RUMSEY, late Surgeon to the Gloucester Dispensary, Cheltenham.

1845 JAMES RUSSELL, M.D., late Senior-Physician to the Birmingham General Dispensary; Lecturer on Pathology and Therapeutics at Sydenham College; 91, New Hall-street, Birmingham.

1851 HENRY HYDE SALTER, M.D. F.R.S., Assistant-Physician to, and Lecturer on Physiology and Pathology at, the Charing Cross Hospital; 6, Montague-street, Russell-sq.

1856 SAMUEL JAMES A. SALTER, F.L.S., Surgeon-Dentist to, and Lecturer on Dental Surgery at, Guy's Hospital; 17, New Broad-street, City. *Trans.* 1.

1844 *THOMAS BELL SALTER, M.D. F.L.S., Medical Officer of the Royal Isle of Wight Infirmary; Ryde, Isle of Wight.

1849 HUGH JAMES SANDERSON, M.D., 26, Upper Berkeley-street, Portman-square.

Elected

1855 JOHN BURDON SANDERSON, M.D., Medical Officer of Health for Paddington; Lecturer on Medical Jurisprudence at St. Mary's Hospital; 9, Gloucester-place, Hyde-park.

1847 WILLIAM HENRY OCTAVIUS SANKEY, M.D., Middlesex County Lunatic Asylum, Hanwell.

1845 EDWIN SAUNDERS, Surgeon-Dentist to H.M. the Queen, and H.R.H. the Prince Consort; 13A, George-street, Hanover-square.

1834 LUDWIG V. SAUVAN, M.D., Warsaw.

1840 AUGUSTIN SAYER, M.D., Physician to the Lock Hospital; 28, Upper Seymour-street, Portman-square.

1853 MAURICE SCHULHOF, M.D., Physician to the Royal General Dispensary, Bartholomew-close; 7, Suffolk-place, Pall Mall.

1856 EDWIN SERCOMBE, Surgeon-Dentist to St. Mary's Hospital; 6, Somers-place, Hyde-park. *Trans.* 1.

1824 EDWARD JAMES SEYMOUR, M.D. F.R.S., Consulting Physician to the Seamen's Hospital Ship "Dreadnought;" 13, Charles-street, Berkeley-square. C. 1826, 1831. S. 1827-8. V.P. 1830, 1842. *Trans.* 2.

1840 WILLIAM SHARP, M.D. F.R.S., Horton House, Rugby. *Trans.* 1.

1837 WILLIAM SHARPEY, M.D. F.R.S., Examiner in Anatomy at the University of London, Professor of Anatomy and Physiology in University College, London, and Secretary of the Royal Society; 33, Woburn-place, Russell-square. C. 1848-9.

1836 ALEXANDER SHAW, Surgeon to, and Lecturer on Surgery at, the Middlesex Hospital; 25, Henrietta-street, Cavendish-square. C. 1842. S. 1843-4. V.P. 1851-2. *Trans.* 3.

1848 *EDWARD JAMES SHEARMAN, M.D., Rotherham, Yorkshire.

1849 FRANCIS SIBSON, M.D. F.R.S., Physician to, and Lecturer on Medicine at, St. Mary's Hospital; 40, Brook-street, Grosvenor-square. *Trans.* 1.

1848 EDWARD HENRY SIEVEKING, M.D., Physician to, and Lecturer on Materia Medica at, St. Mary's Hospital; 17, Manchester-square. *Trans.* 1.

Elected

1839 THOMAS HOOKHAM SILVESTER, M.D., Medical Officer to the Clapham General Dispensary; High-street, Clapham. C. 1854-5. *Trans.* 1.

1842 JOHN SIMON, F.R.S., Surgeon to, and Lecturer on Pathology at, St. Thomas's Hospital; Medical Officer of the General Board of Health; 1, Cumberland-street, Bryanston-square. C. 1854-5. *Trans.* 1.

1827 GEORGE ROBERT SKENE, Bedford.

1824 FREDERIC CARPENTER SKEY, F.R.S., Surgeon to, and Lecturer on Anatomy at, St. Bartholomew's Hospital; 13, Grosvenor-street. C. 1828. L. 1829-31. V.P. 1841-2.

1852 CHARLES CASE SMITH, Consulting Surgeon to the Suffolk General Hospital; Bury St. Edmunds, Suffolk.

1854 EDWARD SMITH, M.D. LL.B., Assistant-Physician to the Hospital for Consumption and Diseases of the Chest; 63, Grosvenor-street. *Trans.* 4.

1835 JOHN GREGORY SMITH, Harewood, Leeds, Yorkshire.

1843 ROBERT WILLIAM SMITH, M.D. M.R.I.A.. Professor of Surgery in the University of Dublin; Surgeon to the Richmond Hospital; 63, Eccles-street, Dublin.

1838 SPENCER SMITH, *Secretary;* Surgeon to, and Lecturer on Surgery at, St. Mary's Hospital; 48, Sussex-gardens, Hyde-park. C. 1854. S. 1855-6.

1845 WILLIAM SMITH, Chesterfield, Derbyshire.

1847 WILLIAM SMITH, M.D., Consulting Physician to the Weymouth Infirmary; Weymouth, Dorsetshire.

1850 WILLIAM TYLER SMITH, M.D., Physician-Accoucheur to, and Lecturer on Midwifery at, St. Mary's Hospital; 7, Upper Grosvenor-street. *Trans.* 1.

1843 JOHN SNOW, M.D., 18, Sackville-street, Piccadilly. C. 1857.

1851 JOHN SODEN, Surgeon to the Bath United Hospital, and Consulting Surgeon to the Bath Eye Infirmary; 24, Circus, Bath. *Trans.* 2.

1816 *JOHN SMITH SODEN, 101, New Sidney-place, Bath. *Trans.* 1.

Elected

1830 SAMUEL SOLLY, F.R.S., Surgeon to St. Thomas's Hospital, and Consulting Surgeon to the Royal General Dispensary, Bartholomew-close; 18, St. Helen's-place, Bishopsgate-street. L. 1838-40. C. 1845-6. V.P. 1849-50. *Trans.* 6.

1844 FREDERICK ROBERT SPACKMAN, M.B., Harpenden, St. Alban's.

1834 JAMES SPARK, Newcastle, Staffordshire.

1851 ROBERT JOHN SPITTA, M.B., Medical Officer to the Clapham General Dispensary; Clapham, Surrey. *Trans.* 1.

1843 *STEPHEN SPRANGER, Surgeon to the Bath Eastern Dispensary; 27, Henrietta-street, Bath.

1838 GEORGE JAMES SQUIBB, 11, Montagu-place, Montagu-square. C. 1856-7.

1815 EDWARD STANLEY, F.R.S., President of the Royal College of Surgeons; Surgeon to St. Bartholomew's Hospital; 23A, Brook-street, Grosvenor-square. C. 1821-2, 1835, 1845-6, 1852-3. S. 1824. V.P. 1827, 1839-40. T. 1832-4. P. 1843-4. *Trans.* 12.

1857 JOHN STANTON, M.D., late Physician to the Bristol General Hospital; 7, Upper George-street, Bryanston-square.

1851 JAMES STARTIN, Surgeon to, and Lecturer on Cutaneous Disorders at, the Hospital for Diseases of the Skin, Blackfriars; 3, Savile-row, Burlington-gardens.

1852 SHERARD FREEMAN STATHAM, Surgeon to the Great Northern Hospital, King's Cross; 19, Manchester-street, Argyle-square. *Trans.* 1.

1854 HENRY STEVENS, M.B., Resident Medical Officer, St. Luke's Hospital for Lunatics, Old-street.

1842 ALEXANDER PATRICK STEWART, M.D., Physician to, and Lecturer on Medicine at, the Middlesex Hospital; 74, Grosvenor-street. C. 1856-7.

1856 ALONZO HENRY STOCKER, M.D., Resident Medical Superintendent of Grove Hall Asylum, Bow.

1843 ROBERT REEVE STORKS.

1839 ALEXANDER JOHN SUTHERLAND, M.D. F.R.S., Senior Physician to St. Luke's Hospital for Lunatics, and Consulting Physician to the Royal South London Dispensary; 6, Richmond-terrace, Whitehall. C. 1850-1. *Trans.* 1.

Elected

1855 JOHN MAULE SUTTON, M.D., Kent House, Tenby, South Wales.

1842 JAMES SYME, F.R.S.E., Professor of Clinical Surgery in the University of Edinburgh, and Surgeon to the Edinburgh Royal Infirmary; 2, Rutland-street, Edinburgh. *Trans.* 3.

1854 *FREDERICK SYMONDS, Surgeon to the Radcliffe Infirmary, and Consulting Surgeon to the Oxford Dispensary; 32, Beaumont-street, Oxford.

1844 RICHARD WILLIAM TAMPLIN, Surgeon to the Royal Orthopædic Hospital; 33, Old Burlington-street.

1848 THOMAS HAWKES TANNER, M.D. F.L.S., 10, Charlotte-street, Bedford-square.

1835 JOHN COLLEY TAUNTON, Surgeon to the City of London Truss Society, and to the City Dispensary; 48, Hatton-garden, Holborn. C. 1840-1.

1852 ROBERT TAYLOR, Surgeon to the Central London Ophthalmic Hospital, and to the Cripple's Home, Hill-street; 10, George-street, Hanover-square.

1845 THOMAS TAYLOR, Lecturer on Chemistry at the Middlesex Hospital Medical School; 4, Vere-street, Cavendish-square.

1856 THOMAS PRIDGIN TEALE, F.L.S., Surgeon to the Leeds General Infirmary; 22, Albion-street, Leeds. *Trans.* 2.

1845 *EVAN THOMAS, Cheetham-hill-road, Manchester.

1857 HENRY THOMPSON, M.D., Assistant-Physician to, and Lecturer on Materia Medica at, the Middlesex Hospital; 75, Harley-street.

1852 HENRY THOMPSON, Surgeon to the St. Marylebone Infirmary, and Assistant-Surgeon to University College Hospital; 16, Wimpole-street, Cavendish-square. *Trans.* 2.

1839 SETH THOMPSON, M.D., *Vice-President*, Physician to the Middlesex Hospital; 16, Lower Berkeley-street, Portman-square. C. 1849. S. 1850-1.

1842 THEOPHILUS THOMPSON, M.D. F.R.S., Physician to the Hospital for Consumption and Diseases of the Chest; 3, Bedford-square. C. 1855-6. *Trans.* 4.

Elected

1835 FREDERICK HALE THOMSON, Consulting Surgeon to the Westminster Hospital, and to the West London Institution for Diseases of the Eye; 4, Clarges-street, Piccadilly.

1819 JOHN THOMSON, M.D. F.L.S., Senior Physician to the Finsbury Dispensary; 18, Dalby-terrace, Islington. C. 1833. L. 1834-7. V.P. 1850-1.

1850 ROBERT DUNDAS THOMSON, M.D. F.R.S., Professor of Chemistry at St. Thomas's Hospital, and Medical Officer of Health for St. Marylebone; 11, Marlborough-hill, St. John's-wood. *Trans.* 2.

1836 JOHN THURNAM, M.D., Resident Medical Superintendent of the Wilts County Asylum, Devizes, Wiltshire. *Trans.* 4.

1848 EDWARD JOHN TILT, M.D., Physician to the Farringdon General Dispensary and Lying-in Charity; 11, York-street, Portman-square.

1834 ROBERT BENTLEY TODD, M.D. F.R.S., Physician to King's College Hospital; 26, Brook-street, Grosvenor-square. L. 1842-6. T. 1850-1. V.P. 1854. *Trans.* 3.

1828 JAMES TORRIE, M.D., Aberdeen.

1843 JOSEPH TOYNBEE, F.R.S., Aural Surgeon to, and Lecturer on Aural Surgery at, St. Mary's Hospital, Consulting Aural Surgeon to the Asylum for the Deaf and Dumb, and to the St. George's and St. James's General Dispensary; 18, Savile-row, Burlington-gardens. *Trans.* 6.

1850 SAMUEL JOHN TRACY, Surgeon-Dentist to St. Bartholomew's and Christ's Hospitals; 28, Old Burlington-street.

1808 BENJAMIN TRAVERS, F.R.S., Serjeant-Surgeon to H.M. the Queen, Surgeon in Ordinary to H.R.H. the Prince Consort, and Foreign Associate of the Imperial Academy of Medicine of Paris; 54, Green-street, Grosvenor-square. C. 1810, 1819, 1822-3, 1842, 1847. V.P. 1817-8. P. 1827-8. *Trans.* 10.

1855 JAMES TULLOCH, M.D.

1835 JOHN CUSSON TURNER, M.D., Bexley Heath, Kent.

1845 THOMAS TURNER, F.L.S., Consulting-Surgeon to the Royal Manchester Infirmary, and Lecturer on Anatomy and Physiology at the Manchester Royal School of Medicine; Mosley-street, Manchester.

Elected

1846 ALEXANDER URE, Surgeon to, and Lecturer on Clinical Surgery at, St. Mary's Hospital, and Consulting Surgeon to the Westminster General Dispensary; 18, Upper Seymour-street, Portman-square.

1857 PHILIP JOHN VAN DER BYL, M.D., Lecturer on Histology at the Middlesex Hospital, and Curator of the Museum; 1, Oxford-square, Hyde-park.

1819 BARNARD VAN OVEN, M.D., Consulting Surgeon to the Charity for Delivering Jewish Lying-in Women; 22, Manchester-square.

1806 BOYER VAUX, M.D.

1810 JAMES VOSE. *Trans.* 1.

1828 BENEDETTO VULPES, M.D., Physician to the Hospital of Aversa, and to the Hospital of Incurables, Naples.

1854 EDWARD WADDINGTON, Surgeon to the King's Own Staffordshire Rifles; Newcastle-under-Lyme.

1841 ROBERT WADE, Senior-Surgeon to the Westminster General Dispensary; 68, Dean-street, Soho. *Trans.* 1.

1823 WILLIAM WAGNER, M.D., Berlin.

1820 THOMAS WALKER, M.D., Physician to the Forces; Morro Velhio, Brazil.

1852 WALTER HAYLE WALSHE, M.D., Professor of the Theory and Practice of Medicine in University College, London, and Physician to University College Hospital; Consulting Physician to the Hospital for Consumption; 40, Queen Anne-street, Cavendish-square. *Trans.* 1.

1851 HENRY HAYNES WALTON, Surgeon to the Central London Ophthalmic Hospital, and Surgeon to, and Lecturer on Descriptive and Surgical Anatomy at, St. Mary's Hospital; 69, Brook-street, Hanover-square. *Trans.* 1.

1852 DANIEL WANE, M.D., Obstetric Physician to the Blenheim-street Dispensary; 20, Grafton-street, Berkeley-square.

1846 NATHANIEL WARD, Assistant-Surgeon to the London Hospital; 1, Broad-street-buildings, City. C. 1857. *Trans.* 1.

1845 THOMAS OGIER WARD, M.D., 9, Leonard-place, Kensington.

1821 WILLIAM TILLEARD WARD, Duncannon House, Brighton.

Elected

1846 JAMES THOMAS WARE, Surgeon to the Finsbury Dispensary, and Hon. Surgeon to the Metropolitan Convalescent Institution; 51, Russell-square.

1818 JOHN WARE, Clifton, near Bristol.

1814 MARTIN WARE, 51, Russell-square. C. 1844-5. T. 1846. V.P. 1853.

1829 ELIAS TAYLOR WARRY, M.D., Shapwick, Glastonbury, Somersetshire.

1837 THOMAS WATSON, M.D., Consulting Physician to King's College Hospital; 16, Henrietta-street, Cavendish-square. C. 1840-1, 1852. V.P. 1845-6.

1847 *THOMAS WATSON, Holbeach, Lincolnshire.

1854 WILLIAM WEBB, M.D., late Resident Medical Officer of the Stafford General Infirmary; Wirksworth, Derbyshire.

1840 WILLIAM WOODHAM WEBB, M.D., Lowestoft, Suffolk.

1842 FREDERICK WEBER, M.D., Physician to the St. George's and St. James's Dispensary; 44, Green-street, Park-lane. C. 1857.

1857 HERMANN WEBER, M.D., Physician to the German Hospital; 49, Finsbury-square.

1835 JOHN WEBSTER, M.D. F.R.S., Physician to the Scottish Hospital, and Consulting Physician to the St. George's and St. James's Dispensary; 24, Brook-street, Grosvenor-square. C. 1843-4. V.P. 1855-6. *Trans.* 5.

1844 WILLIAM WEGG, M.D., *Librarian;* Physician to the St. George's and St. James's Dispensary; 5, Maddox-street, Hanover-square. L. 1854-6.

1854 THOMAS SPENCER WELLS, Lecturer on Surgery at the Grosvenor-place School of Anatomy and Medicine, and Surgeon to the Samaritan Free Hospital for Women and Children; 3, Upper Grosvenor-street. *Trans.* 1.

1816 SIR AUGUSTUS WEST, Knt., M.D., Deputy-Inspector of Army Hospitals to the Portuguese Forces; Paris.

1842 CHARLES WEST, M.D., Physician.Accoucheur to, and Lecturer on Midwifery at, St. Bartholomew's Hospital; and Physician to the Hospital for Sick Children; 96, Wimpole-street, Cavendish-square. C. 1855-6. *Trans.* 2.

Elected

1841 THOMAS WEST, M.D., Daventry, Northamptonshire.

1828 JOHN WHATLEY, M.D.

1849 JOHN WHITE.

1852 JOHN WIBLIN, Medical Inspector of Emigrants and Recruits; 73, Morland-place, Southampton.

1824 *WILLIAM JOHN WICKHAM, Consulting Surgeon to the Hants County Hospital; Winchester. *Trans.* 1.

1844 FREDERICK WILDBORE, 1, Trafalgar-place-east, Hackney-road.

1837 GEORGE AUGUSTUS FREDERICK WILKS, M.D.

1840 CHARLES JAMES BLASIUS WILLIAMS, M.D. F.R.S., Consulting Physician to the Hospital for Consumption; 49, Upper Brook-street, Grosvenor-square. C. 1849-50.

1829 ROBERT WILLIS, M.D., Barnes, Surrey. L. 1838-41.

1839 ERASMUS WILSON, F.R.S., Consulting Surgeon to the St. Pancras Infirmary; 17, Henrietta-street, Cavendish-square. *Trans.* 2.

1839 JAMES ARTHUR WILSON, M.D., 28, Dover-street, Piccadilly. C. 1846-7. *Trans.* 4.

1850 *ROBERT STANTON WISE, M.D., Consulting Physician to the Southam Eye and Ear Infirmary; Banbury, Oxfordshire.

1825 THOMAS ALEXANDER WISE, India.

1851 JOHN WOOD, Assistant-Surgeon to King's College Hospital; 38, Bedford-place, Russell-square.

1841 GEORGE LEIGHTON WOOD, Surgeon to the Bath General Hospital; Queen-square, Bath.

1848 WILLIAM WOOD, M.D., 54, Upper Harley-street.

1843 JOHN WARD WOODFALL, M.D., Physician to the West Kent Infirmary; Maidstone, Kent.

1833 THOMAS WORMALD, Assistant-Surgeon to St. Bartholomew's Hospital, and Surgeon to the Foundling Hospital; 42, Bedford-row. C. 1839. V.P. 1854.

1842 WILLIAM COLLINS WORTHINGTON, Senior Surgeon to the Infirmary, Lowestoft, Suffolk. *Trans.* 3.

1848 EDWARD JOHN WRIGHT, 13, Montague-place, Clapham-road.

Elected
1855 HENRY G. WRIGHT, M.D., Physician to the St. Pancras Royal General Dispensary; 23, Somerset-street, Portman-square.

[It is particularly requested, that any change of Title or Residence may be communicated to the Secretaries before the 1st of August in each year, in order that the List may be made as correct as possible.]

HONORARY FELLOWS.

(Limited to Twelve.)

Elected

1841 WILLIAM THOMAS BRANDE, D.C.L. F.R.S., Hon. Professor of Chemistry at the Royal Institution of Great Britain, Examiner in Chemistry, and Member of the Senate at the University of London; Royal Mint, Tower-hill.

1835 SIR DAVID BREWSTER, K.H. D.C.L. LL.D. F.R.S., &c., Corresp. Memb. Institute of France, &c.; St. Andrew's.

1853 BENJAMIN COLLINS BRODIE, B.A., F.R.S., Aldrichian Professor of Chemistry in the University of Oxford.

1841 ROBERT BROWN, D.C.L. F.R.S., Keeper of Botany at the British Museum; Dean-street.

1847 EDWIN CHADWICK, late Commissioner of the Board of Health.

1835 MICHAEL FARADAY, D.C.L. F.R.S., Corresp. Memb. Institute of France, Member of the Senate at the University of London, and Fullerian Professor of Chemistry in the Royal Institution.

1857 WILLIAM FARR, M.D. D.C.L. F.R.S., General Register Office, Somerset House.

1841 SIR JOHN FREDERICK WILLIAM HERSCHEL, Bart., D.C.L. F.R.S., Corresp. Memb. Institute of France; Collingwood, near Hawkhurst, Kent.

1835 SIR WILLIAM JACKSON HOOKER, D.C.L., LL.D. F.R.S. F.L.S., Director of the Royal Botanic Garden, Kew; West Park, Kew.

1847 RICHARD OWEN, D.C.L. LL.D. F.R.S., Corresp. Memb. Institute of France; Superintendent of the Natural History Department in the British Museum; Sheen Lodge, Mortlake.

1835 The Rev. ADAM SEDGWICK, A.M. F.R.S., &c., Woodwardian Professor, Cambridge.

1841 The Rev. WILLIAM WHEWELL, D.D. F.R.S., Vice-Chancellor of the University and Master of Trinity College, Cambridge.

FOREIGN HONORARY FELLOWS.

(Limited to Twenty.)

Elected

1841 G. ANDRAL, M.D., Member of the Institute and of the Imperial Academy of Medicine, Physician in Ordinary to the Emperor of the French, Professor of Pathology in the Faculty of Medicine, and Physician to the "Hôpital de la Charité;" Paris.

1856 A. F. CHOMEL, Professor of Clinical Medicine in the Faculty of Medicine, and Member of the Imperial Academy of Medicine, Paris.

1856 BARON PAUL DUBOIS, Commander of the Legion of Honour, Member of the Imperial Academy of Medicine, Dean of and Professor of Clinical Midwifery in the Faculty of Medicine, Paris.

1835 CARL JOHAN EKSTRÖMER, M.D., C.M., K.P.S. and W., Physician to the King of Sweden, President of the College of Health, and Director-General of Hospitals; Stockholm.

1841 CHRISTIAN GOTTFRIED EHRENBERG, Berlin.

1835 BARON ALEXANDER von HUMBOLDT, Member of the Institute of France, &c., Berlin.

1841 JAMES JACKSON, M.D. LL.D., Emeritus Professor of Medicine in the University of Cambridge, Boston, U.S.

1856 BERNHARD LANGENBECK, M.D., Professor of Surgery in the University of Berlin.

1843 BARON JUSTUS von LIEBIG, M.D. F.R.S., Professor of Chemistry in the University of Munich.

1841 P. C. A. LOUIS, M.D., Honorary Physician to the Hôtel-Dieu, Member of the Imperial Academy of Medicine, Paris.

1847 CARLO MATTEUCCI, Professor in the University of Pisa.

1853 VALENTINE MOTT, M.D., Professor of Surgery in the University of New York, President of the New York Academy of Medicine; New York.

Elected

1841 JOHANNES MÜLLER, M.D., Professor of Anatomy and Physiology, and Director of the Royal Anatomical Museum, Berlin.

1841 BARTOLOMEO PANIZZA, M.D., Pavia.

1850 CARL ROKITANSKY, M.D., Curator of the Imperial Pathological Museum and Professor at the University of Vienna.

1856 LOUIS STROMEYER, M.D., Director-General of the Medical Department of the Army of Hanover; Hanover.

1835 C. J. TEMMINCK, Director of the Museum of Natural History of the King of Holland, Amsterdam.

1835 FRIEDRICH TIEDEMANN, M.D., Frankfort-on-the-Maine.

1856 A. VELPEAU, Member of the Institute, and of the Imperial Academy of Medicine, Professor in the Faculty of Medicine, Surgeon to the "Hôpital de la Charité;" Paris.

1856 RUDOLPH VIRCHOW, M.D., Professor of Pathological Anatomy in the University of Berlin.

CONTENTS

PAGE

List of Officers and Council vii

List of Referees ix

List of Presidents of the Society x

List of Fellows of the Society xi

I. On the Treatment of Aneurism by Manipulation. By William Fergusson, F.R.S., Professor of Surgery in King's College, &c. &c. 1

II. Case in which a Large Cyst was successfully removed from the upper part of the Neck of a Young Woman, aged 27, who was considered at Birth to have been the subject of Spina Bifida; with Three Plates. By Samuel Solly, F.R.S. 19

III. On the Determining Causes of Vesicular Emphysema of the Lung. By William Jenner, M.D., F.R.C.P., Professor of Pathological Anatomy, University College; Physician to University College Hospital, the Hospital for Sick Children, &c. 25

IV. Five Cases of Tracheotomy in Croup, with Remarks on certain points connected with the Operation; with a Postscript containing two additional Cases. By Henry William Fuller, M.D. Cantab., F.R.C.P., Physician to St. George's Hospital, &c. 39

V. Some Observations on the Anatomy and Pathology of the Adult Prostate, founded upon Fifty Preparations of the Organ, dissected by the Author, and accompanying the Paper; with Two Plates. By Henry Thompson, F.R.C.S., M.B. Lond., Surgeon to the St. Marylebone Infirmary; Assistant-Surgeon to University College Hospital . 77

VI. On Disarticulation of the Scapula from the Shoulder-Joint. By James Syme, F.R.S.E., Professor of Clinical Surgery in the University of Edinburgh . . . 107

VII. On a new Method of Operating for Impermeable Urethra. By James Syme, F.R.S.E., Professor of Clinical Surgery in the University of Edinburgh . . . 113

VIII. Case of Double Talipes Varus in which the Cuboid Bone was partially removed from the Left Foot. By Samuel Solly, F.R.S. 119

PAGE

IX. On Forcible Extension and Rupture of the Uniting Medium of partially Ankylosed Surfaces. By Bernard E. Brodhurst, Assistant-Surgeon to the Royal Orthopædic Hospital 125

X. On Scirrhus of the Male Breast. By J. L. Milton, Esq. Communicated by John Simon, Esq., F.R.S., &c. . 141

XI. Analysis of Fifty-two Cases of Epilepsy observed by the Author. By Edward H. Sieveking, M.D., Fellow of the Royal College of Physicians; Physician to the late Duke of Cambridge; Lecturer on Materia Medica and Physician to St. Mary's Hospital 157

XII. A Case of Disease of the Heart, with great Dilatation of the Auricles. By W. O. Markham, M.D., Fellow of the Royal College of Physicians; Physician to St. Mary's Hospital 167

XIII. Case of intense and long-continued Photophobia and Blepharospasm, relieved by the Inhalation of Chloroform. By William Mackenzie, M.D., Surgeon to the Eye Infirmary, Glasgow 175

XIV. On the Effects of Twelve Weeks' Residence in Bulgaria (during the Months of June, July, and August, 1854) on the subsequent Health of the British Troops in the Crimea. By William Aitken, M.D. Edin., Corresponding Member of the Imperial Natural History Society of Dresden, and of the Royal Imperial Society of Physicians of Vienna; formerly Demonstrator of Anatomy in the University of Glasgow; and late Pathologist at Scutari. Communicated by Dr. Jenner . 179

XV. Further Observations on the Use of the Speculum in the Diagnosis and Treatment of Uterine Diseases. By Robert Lee, M.D., F.R.S., Obstetric Physician to St. George's Hospital 201

Index 235

ON

THE TREATMENT OF

ANEURISM BY MANIPULATION.

BY

WILLIAM FERGUSSON, ESQ., F.R.S.,

PROFESSOR OF SURGERY IN KING'S COLLEGE, ETC., ETC.

Received Oct. 14th.—Read Nov. 11th, 1856.

The term given to this paper means a particular manipulation of an aneurism, whereby the fibrin within may possibly be so displaced as, either in part or in whole, to block up the main artery on the distal side of the disease.

The pathology of aneurism seems to have reached its limits, and few, if any, points of great apparent importance have been enunciated in recent years. The practical bearings of the knowledge we already possess may be said to be still fruitful; and the modern history of the treatment of aneurism by compression shows, by its successful results, that the Hunterian doctrines, in the ordinary sense, should not be deemed final on such an important subject.

It is well known that, every now and then, the ordinary form of aneurism, as seen in the popliteal, superficial femoral, subclavian, and other great arteries, undergoes a spontaneous cure—a cure by natural means, as we say; and

every one who has given even slight attention to this subject knows how these cures are brought about, or are supposed to be so, by nature. The theory, if I may so call it, of the process of cure in such cases is so simple pathologically, and at the same time admirably demonstrative, that, in so far as I am aware, an objection has never once been raised to those views which are usually included under the "natural means" whereby this formidable disease occasionally disappears as it were spontaneously.

It is generally allowed that if the current of blood passing through an aneurism be in any way diminished in bulk or force, there is a tendency to a diminution in the size of the tumour, and to the cure of the disease; the latter being effected partly, perhaps, by the contraction of tissues, but chiefly by deposit of fibrin, which is more likely to take place under such circumstances than when the blood courses along in a full and impetuous stream. The results of the Hunterian operation have given ample proof on this subject; for the circulation through an aneurism has frequently been noticed after ligature of the main artery, yet in due time it has gradually and permanently ceased. Modern experience of the treatment by pressure has also amply proved that aneurism may be cured, even rapidly, by simply diminishing the force and current of the circulation through the main artery leading to the disease. The modification of the operation of Brasdor, as inculcated by Mr. Wardrop, was founded on this view; and it seems proved by the results of the operations performed by that gentleman, and those who have repeated his practice, that the application of a ligature on the distal end of an artery affected with aneurism, although it may not entirely stop the circulation through the disease, may so modify its force and volume as to permit those changes above alluded to, to take place, which lead to a cure.

So thoroughly is the pathologist aware of the fact that the cure of aneurism is effected chiefly by the deposit of fibrin, and thereby the blocking up of the cavity of the aneurismal sac, so that fluid blood can no longer flow

through it, that the treatment of this disease, whether by the physician or surgeon, is based upon such knowledge. Whatever is done seems, more or less, an imitation of nature's ways.

It is needless on this occasion to write at much length on such points; suffice it to say, that all plans of treatment, by starving, or giving such diet as might increase the fibrin of the blood, by ligature on the proximal or distal side of the disease, by pressure, or by electricity, have been founded on the necessity of aiding nature to accomplish this desirable condition.

For many years I have entertained the opinion that surgeons have not yet taken full advantage of all they know regarding the pathology and cure (by natural or artificial means) of this disease, and it is my intention in the present communication to this learned Society, to attempt a step in this interesting field.

It was my good fortune to receive part of my surgical education from the late Professor Turner, of Edinburgh, who was himself one of the most zealous of the pupils and assistants of John Thomson, so distinguished for his lectures on Inflammation and other subjects. Professor Turner had paid particular attention to the diseases of blood-vessels; and his 'Essay on the Spontaneous Obstruction of Arteries,' published in the third volume of the 'Transactions of the Medical and Chirurgical Society of Edinburgh,' sufficiently attests his industry and originality in this department of pathology. The lectures of Professor Turner were, I have no doubt, based on those of John Thomson, who was Professor of Surgery to the Royal College of Surgeons of Edinburgh. They were replete with interest, and particularly so on the subject of aneurism. I recollect, that in referring to the possible spontaneous cure of this disease, Mr. Turner dwelt on the probability that a layer of lymph from the inner side of a clot might by some accident get displaced, and being carried by the current into the artery on the distal side of the aneurism, might so impede or actually obstruct the circula-

tion in the usual course, as to send the blood on the collateral vessels, and so, by giving comparative or total quietude to the circulation in the aneurismal tumour, lead to a natural cure, just as pressure or ligature might do. To illustrate this doctrine Mr. Turner referred to the case of a gentleman who had a distinct and formidable aneurism of the subclavian artery. In spite of all remonstrances to the contrary, this patient would persist in his favorite amusement of swimming in the open sea. On one occasion, soon after his usual indulgence, a change was noticed in the tumour. I cannot now charge my memory with the particulars, but it is sufficient for my present purpose to state that the aneurismal disease underwent a spontaneous cure in this instance. Professor Turner cited the case to illustrate the possible cure of aneurism by the displacement of fibrin; for he supposed that in this instance such an occurrence had taken place during the movements of the arms in the act of swimming.

I remember being interested in this case as embodying an important pathological theory, and the leading features remained permanently on my mind. Many years afterwards, when in practice in Edinburgh, I was engaged in the treatment of a case of remarkable interest. A man about the middle period of life was, on getting into bed at night, suddenly seized with severe pain in the leg, which induced him to send for Dr Russell, then in practice in Edinburgh. Besides the pain of which the patient complained, the only thing peculiar which that gentleman could make out was that pulsation could not be felt in the arteries, or in the lower part of the superficial femoral. The symptoms led Dr. Russell to conjecture that sudden obstruction had taken place in this vessel, and that the case was analogous to some of those which Professor Turner had brought under notice some years before in the paper above alluded to. The distress in the limb in this patient was considerable, and the case being thought remarkable, many men of note were asked to see it. Among them I may mention Sir George Ballingall and Sir Charles Bell. The progress

towards free use of the limb was slower than was in accordance with the patient's ideas, and he was induced to consult a charlatan, who applied a bandage to the foot and leg. This pressure speedily induced mortification, and the patient, in throwing himself back on his former attendants, was obliged to submit to amputation in the thigh, which, unfortunately, after all, did not save his life. All were interested in the examination of the arteries of the amputated limb, and it was with no small astonishment that a small aneurism was discovered in the popliteal artery, well plugged with a firm mass of fibrin. The limb had been, during life, a very stout one; there had been no suspicion of this disease, and after the patient was laid up, although the ham had frequently been examined, there was nothing perceived to induce a suspicion of the presence of this tumour. The artery above and below the disease was remarkably healthy in tissue; and the conclusion drawn from the history of this case was that, on the occasion of getting into bed, either a portion or the whole of the mass of fibrin had been so displaced as to obstruct the circulation in the arteries below, and thereby cause the pain or peculiar sensations of which the patient had complained, and that the spontaneous cure of aneurism was in favorable progress until the tight bandage had so obstructed the collateral circulation as to bring on mortification.

This case seemed to me an illustration of the reasoning adopted by my old teacher.

Some years after I was present at a consultation, which had been invited by a surgeon of great eminence and skill, on a case of popliteal aneurism, for the cure of which he proposed to tie the superficial femoral artery. The patient had been seen by this surgeon some three weeks before, and at that time the symptoms were so clear that he had indicated the proper course to be pursued, to which a willing assent had been given. The patient went home to arrange some affairs, and the surgeon, who had given him the customary advice, saw him on his return for the first time when the consultants were met. A brief history of the

case was given, and on examination of the ham by the surgeon chiefly interested, it was declared that the disease had disappeared. No one doubted that a spontaneous cure had taken place in the interval between the dates when the patient had been seen, and in my mind it served as another illustration of the doctrines above referred to.

These cases, with others, served to cause further reflection on my part on what I had heard from Professor Turner, and what I had learnt from the admirable writings of Mr. Hodgson on this subject.

One result of my reflections was that, although professional men had attempted to aid or imitate nature in almost all respects, there had been no suggestion or effort made to imitate the accident above alluded to; and that, if so-called spontaneous cures did in reality occur by accidental displacement of a portion of or the mass of fibrin, the hint had never been taken advantage of in any way. I was young when these thoughts first crossed my mind, and more diffident than varied experience has now taught me to be; but soon after I was in the yearly habit in my lectures of stating that possibly some imitations of the accidental displacement made purposely by the surgeon might result in a cure on the same principle and in a similar way. As a matter of course, I adverted to the extreme caution and care with which a surgeon usually handled an aneurism, but I stated that possibly a more vigorous manipulation might cause some displacement, such as described, and so bring about a cure. All this, however, I need hardly say, was stated to my pupils with great precautions.

The Hunterian operation being so generally applicable to all cases of aneurism usually coming under the surgeon's notice, I had few, if any, opportunities of putting the doctrine above propounded to the test; and I felt that it would be unwise to give it further publicity until I could produce some practical corroboration which might add some force and weight to a speculation which might be deemed startling and even dangerous in aspect. The course of time has brought about the desideratum in question, and

one of my principal objects in this paper is to lay the following particulars before this Society, so that the whole subject may be brought under the notice of the profession.

A. L—, æt. 40, a healthy man of average weight and bulk, recommended to me by Dr. Wright, of Halifax, Yorkshire, and the late Dr. Taylor, of Huddersfield, formerly of University College, came under my notice for the first time on January 29th, 1852. There was a tumour at the bottom of the right side of the neck about the size of a small orange, which presented all the ordinary indications of aneurism of the subclavian artery; the part of the vessel involved seemed chiefly between the scaleni muscles. The patient had noticed the swelling for about two years, but it was only recently that he had taken advice about it, and he had come to town to submit to any treatment which I deemed advisable.

It was evident that, in the event of any operation by ligature being determined on in this case, the vessel must be tied either on the tracheal side of the scaleni, according to the Hunterian doctrine, or on the distal side, in accordance with the views of Brasdor and Wardrop. Considering the latter proceeding as in most respects a last resource, and entertaining a conviction that ligature of the subclavian on the tracheal side of the scaleni is all but a hopeless proceeding, it appeared to me that this was as fair an instance to put my own views to the test as I was ever likely to meet with. Pulsation in the tumour was remarkably distinct, and it did not appear that much fibrin was present; yet any interference with the knife seemed so objectionable, that I thought the patient's chances less hazardous by such a project as my own than by any of the usual methods of practice.

Some of these views I had already decided in my own mind irrespective of this case, and it seemed to me that a fair opportunity had arisen to test them. Accordingly, on Saturday, January 31st, 1852, when this patient made a morning visit to my house, I put the experiment

to the test. Having ascertained that the pulsation in the radial, humeral, and axillary arteries was as distinct as usual, I proceeded with my trial. The patient was seated in a chair, and I placed the flat end of the thumb on the aneurismal tumour so as to cover the prominence; I then pressed until all the fluid blood had passed from the sac, and I could feel that the upper side of the aneurism was pressed against the lower. I now gave a rubbing motion to the thumb, and felt a friction of surfaces within the flattened mass. The movements were little more than momentary, but they were such as I had preconceived. The immediate effect was startling. I had hardly raised my thumb from the neck, when I perceived the patient's hand become remarkably pale, and a confused expression in his countenance. He started from his seat, exclaiming, "What have you done? You have made me tipsy!" and staggered as if about to fall. I placed him on a couch at once, and at the same time ascertained that pulsation had returned in the tumour, but that it had ceased in all the arteries below. I then felt convinced that by some change in the position of the layers or mass of lymph which had been in the tumour, the artery on the distal side of the disease had been suddenly blocked up, and the giddiness of the patient I attributed to the sudden increased rush of blood to the head which might be supposed likely under the circumstances. The patient never lost consciousness, and erelong rallied from the mental confusion into which he seemed to have been thrown. He soon complained of pain in the hand and forearm, such as he had felt two years before. In half an hour he was able to leave the house for his lodgings in the vicinity, and at that time his hand felt cold and benumbed. At five o'clock p.m. of the same day I visited him, and to my disappointment felt that pulsation had returned in all the vessels of the upper extremity. I then thought that possibly only a thin layer of fibrin might have passed against or into the artery below the tumour, and that it might have been washed aside, or displaced by the action of the heart or some movement of the arm. The

impression on my mind was so strong that the procedure in the morning had, for a time at all events, realised my anticipations, that I resolved to give it another trial. The next attempt I delayed, however, until the following day.

February 1st, 1852.—I manipulated the tumour in the way described, having first carefully ascertained that circulation was going on freely in the arterial system below. The immediate effects were much the same as yesterday. Pulsation ceased in all parts of the arm, the hand grew pale, the pain returned, and he felt giddy as before. On this occasion he was kept quietly on a sofa.

2d.—Pain in arm less, no return of pulsation, tumour as before.

3d.—9·30 a.m. Pain in arm has ceased during the night, throbbing in tumour seems less distinct, both in my estimation and that of the patient.

4·30 p.m. A slight tingle perceptible in the radial artery at wrist.

4th.—10 a.m. Radial artery full of blood, but no thrill in pulse to be felt. Tumour less in size, and throbbing much diminished. Has had considerable pain in arm during the night.

6 p.m. A feeble movement can be felt in the radial artery. Patient declares his consciousness of great change in condition of tumour, both size and throbbing being less.

5th.—11 a.m. Pulse at wrist scarcely so distinct as last night, tumour seems a little larger, but in other respects much the same.

6 p.m. Much the same. The tumour is tender to the touch at its distal end, where the artery may be supposed to be plugged. Arm and hand warm and perspiring.

6th.—6 p.m. Pulsation in radial can just be felt. Slight tingling pain in back of arm and numbness of joints of fingers. No pulsation to be felt in humeral artery, but when it is compressed the radial collapses.

7th.—6 p.m. Pulse in radial so distinct that it can be counted.

8th.—10 a.m. Pulse equally distinct as last night. For

the first time I perceive pulsation in an artery crossing the upper part of the tumour, probably the transversalis colli or posterior scapular, which feels larger than natural. Tumour much the same as for several days back. Throbbing, perhaps, less distinct. When moderate pressure with the finger is made on the tumour, the throbbing is a little more distinct than in the carotid artery of the same side, but it is more diffused. Patient states that he can now lie comfortably on the left side, which he could not do before, owing to the uneasiness which this attitude produced in the tumour and at the root of the neck.

9th.—10 a.m. Pulse at wrist distinct, that in transversalis colli more distinct than yesterday. Humeral artery full and pulsating slightly, axillary not to be felt.

10th.—Much the same as yesterday. Patient feels as if worms were moving about the shoulder and back of shoulder-blade.

19th.—From the 10th until this date matters have been much the same. Various professional friends who have been watching progress have considered both pulsation in tumour and its size have diminished. To-day Dr. Taylor from Huddersfield has seen the patient. He thinks that the throbbing in the tumour has manifestly declined, and that there is more change in this respect than in the size. With the stethoscope he finds that the sound is now louder in the left subclavian artery than in the tumour. Altogether, he is much struck and pleased with the change.

March 5th.—Up to this date there has been no material change, the tumour is decidedly smaller and somewhat harder, and the throbbing less distinct both to the eye and touch. Pulsation in arteries of the arm and forearm distinct; none to be felt in axilla. The artery traversing the neck and tumour remarkably distinct, and pulsation in it almost as forcible as in the tumour. Patient is now very desirous to go home, and is about to leave town. Since February 1st he has been kept chiefly in bed, and he has promised to abstain from all active occupation for some time to come.

8th.—Dr. Taylor writes from Huddersfield that he has seen Mr. L—, who had not suffered in any way from his journey. He states that "one is liable to some error in comparing from memory the size, &c., of the tumour now and in February. What I am sure of, however, is this, that the tumour is smaller, pulsates less strongly, expands less, and feels more solid than before L— saw you."

On the 28th of March Dr. Taylor reports that the tumour is "distinctly smaller, and pulsating less; that there is little difference between the radial arteries at the two wrists; still no pulsation higher than the middle of the arm, and that the patient's appearance is improving."

April 8th.—Dr. Taylor reports that "the tumour is about the same in bulk, but no pulsation is visible except it be scrutinised from different points of view, and then it is barely visible. It is readily felt, however, but it is much more feeble, and there is very little expansion. It also feels firmer."

About this time Dr. Taylor was unable, from the state of his health, to see his patients; and Mr. Clark, surgeon, of Huddersfield, who had taken great interest in the case, and had frequently seen it, writes, on the 29th of May,—"I have this day called on Mr. L—, not having examined him for upwards of a month. I see a decided improvement; the tumour is less, and feels firmer to the touch; there is still *bruit*, but less distinct than formerly. He almost daily experiences those creeping sensations round the shoulder something like worms. There is pulsation of the artery in the axilla, compression of which stops the pulse at the wrist; but it is exceedingly small and feeble, and I cannot trace it from the tumour. With regard to the size, it is now much less than it was when he saw you first, and he feels confirmed in this from the prominence of the clavicle, which, when he now places his hand on the part, is first felt, but before was concealed from the touch by the tumour."

A few days after this I had a note from the patient himself, wishing leave to use his arm more freely than he had been permitted since his arrival in London.

On the 19th of September Dr. Taylor wrote as follows: "I am sorry to tell you that Mr. L— is very ill. Everything went on favorably until a fortnight ago, the tumour remaining much about the same in size, but the impulse felt decidedly less. At that time he was attacked with what he called rheumatism in the shoulder, attended with general feverishness. Three or four days afterwards he sent for me, when I found him with a dirty tongue, urine scanty and high coloured; and complaining of pain coming on in irregular paroxysms, extending along the neck, chest, and scapula, but fixing as a centre in the shoulder-joint, and most dreadful in its character, sometimes gnawing and burning, at other times lancinating. It was not increased on pressure, or on movement of the joint; but rising from his warm place in bed would bring it on. Pressure on the tumour produced no effect upon it. Since I first saw him he has continued much the same, excepting that the paroxysms of pain are more severe, and great suffering has much reduced his strength and caused loss of flesh, giving to the tumour apparently increased size, but I believe it is only apparently so."

In a few days more, death took place, seemingly from exhaustion caused by the great pain, which all Dr. Taylor's skill could not allay. A post-mortem examination was permitted, when it was found that the aneurism had partially given way at its lower and back part, whereby the axillary plexus of nerves seemed to have become a portion of the sac. The contents were solid fibrin of old date, and recently coagulated blood. The axillary artery was filled with a firm plug of fibrin. The mass, including nerves and surrounding cellular tissue, was about the size of a hen's egg.

Notwithstanding the fatal event in the above case, the history had impressed me strongly with the idea that all the physiological data for a cure had been present, and that it was only from the unfortunate giving way of the tumour that my anticipations had not been realised.

Another year elapsed ere I had a similar opportunity of testing my views again.

On the 4th of August, 1853, R. R—, æt. 44, a strong, healthy-looking sailor, came under my care at King's College Hospital. He arrived at the hour of visit, and I saw him almost as soon as he came to the hospital. Being afraid that he would be too late, he had run for half a mile to be in time, and was heated when I examined him. There was a tumour in the course of the right subclavian, similar to that in the case above described; and, after all the ordinary style of examination, I manipulated the swelling exactly as I had done in the previous case. Many of the pupils of the hospital were present at the time, and I had referred to the similarity of the two cases. My first view of the patient and the manipulation had all been so hurried, comparatively, that but little of his history had been obtained, and I had taken little notice of particulars either immediately before or after our first interview. Having further duties in the hospital I went on, giving instructions for the admission of the patient. Within half an hour a message was brought to me that this man was very unwell, and when I went to see him I perceived that he had become paralysed on the left side,—face, arm, and leg being involved. His mouth was twitched conspicuously to the right side, and he could not, without much effort, raise or move either left arm or leg. He retained his consciousness, but felt giddy and confused. Shortly after I had left him he had stooped to pick up his hat, which he could not hold, and he staggered in such a way as to induce the nurse to assist him to a bed. During the ensuing night he had made a partial recovery, and next day the following history was procured from his own dictation. Nine months ago he first perceived an occasional numbness in his right forearm, especially after using it. This gradually increased, and was accompanied by a dull gnawing pain at the inner and back part of the forearm, attended with a tingling sensation at the tip of the fingers. About five months ago he per-

ceived that he had no pulse at the wrist. He became aware of the presence of an aneurismal tumour only a few days ago, when he was examined at the Dreadnought Hospital Ship. Thinks that it has increased in size slightly since then. In the last four months has not had much vigour in his right arm. Within the last two months has occasionally felt in the left arm as he had done in the right, but remembered that there had been no stoppage in the pulse at the left wrist.

Up to the 20th of August there was little material change, excepting that the paralysis of the left side had diminished, and that pulse could be detected at the right wrist.

The main features remained much the same until the 6th of October. There had in the interval been peculiar sensations in the course of the collateral circulation, and for the last sixteen days the pulsation at the right wrist had ceased again. This day the tumour was again squeezed with the thumb as on a former occasion; but with no perceptible effect, except that for several days the patient complained of slight pain about the shoulder. On the 20th this pain had ceased, and as he had now regained to a great extent the use of his left side, he was sent into the country.

On the 15th of June, 1854, he was again admitted into King's College Hospital. Since he had left the institution he had for some time followed his occupation as a seaman. He now seemed in excellent health, but did not feel so vigorous as before his first illness. The tumour appeared much as when he left the hospital, and a slight throb could be perceived in the radial artery.

On the 20th of June an attempt was made to keep continued pressure on the tumour; but it proved so unsatisfactory that it was given up. The patient again departed from the hospital on the 26th of August.

He was again admitted in October of the same year; but for six weeks there seemed no perceptible change, and he was again discharged.

In August, 1855, he came to the hospital, and now the tumour had completely disappeared. There was not a trace of it to be perceived; a slight pulse could be felt at the wrist. The arm seemed much the same as its fellow, and on the left side the paralysis had gone off. The man seemed in all respects free from disease, and in excellent health.

Heretofore I have hesitated about bringing these views and cases before this Society, because I felt anxious to possess further illustrations and practical evidence; but, however imperfect the data are, I think it better for many reasons that they should now have greater publicity than heretofore.

To an attentive observer it must appear that many of the particulars of these two cases coincide, in most respects, with our preconceived physiological opinion, whilst certain peculiarities and phenomena cannot be accounted for by any knowledge which we already possess regarding the spontaneous or artificial cure of aneurism.

Any reasoning of mine on the subjects now before the Society may in some respect be deemed partial and prejudiced, and therefore I shall be as brief in this way as I possibly can. I trust, however, that I may be pardoned if I offer a brief commentary on the preceding part of this paper.

First, I shall presume that my premises as to the supposed natural cure of aneurism, the views entertained of the various methods of cure, and the occasional accidental cure of this disease, are generally admitted. The latter condition is that which most appropriately calls attention in the present question. It is a method of spontaneous cure which has been but rarely adverted to, and in so far as I am aware the idea suggested in this paper has never been entertained by any one, nor put to the practical test prior to the dates referred to, but by myself.

Notwithstanding the unfortunate issue, it seems to me that the first of these two cases carries out the physiological

data more clearly than the other. The fact of the obstruction of the circulation by the means described can scarcely be doubted. The gradual subsidence of the tumour, and the clear evidence as to the enlargement of the collateral circulation, seems to me as distinctly proved as many of the admitted facts regarding the Hunterian operation. The sudden cessation of pulsation in all the main arteries beyond the tumour, the gradual restoration of the pulse about the same date as after ligation of the subclavian, the distinct and gradual increase in size of one of the main collateral arteries at the root of the neck, and the feeling as of worms creeping about the shoulder, are features of imposing interest in this history. The sudden giddiness after manipulation of the tumour might be looked upon also as a specific feature; but on this point I have my doubts. If the view that I take, as to the sudden obstruction in the distal side of the tumour, be correct, it might be thought that the sudden gush of blood to the head, through the carotid and vertebral arteries, might readily account for the phenomena observed; yet it must be observed, that sudden deligation of the subclavian artery does not produce the effects in question; but on this subject I must request attention to some remarks a little further on. The persistence of the tumour, notwithstanding its gradual diminution, is also another feature which cannot, in my opinion, be readily accounted for. Possibly the deep cervical artery, or the first intercostal, may have arisen from the part of the artery involved; but supposing such to have been the case, I confess myself unable to give any explanation why throbbing should have continued so long; for my impression is, that a gradual deposition of lymph, and possibly coagulation of blood, should have at an earlier period completely obstructed these vessels.

The sudden giving way of one side of the tumour, which in my opinion led to the fatal result, may, I presume, be accounted for by the patient having inadvertently made more use of the arm than he should have done; for it will

be observed that the evil symptoms arose shortly after his own special request was made that he should be permitted to use the limb more freely than at any time since the manipulation.

The second case is of a more mixed character. Although the grand object of treatment may be supposed to have been fulfilled, the physiological data are scarcely so clear as in the preceding instance. Here it may be observed that the pulse at the wrist could not be detected at the time he came under treatment, and the remarkable fact noticed in the other case, of the sudden cessation of pulsation at all points beyond the disease immediately after manipulation, was absent. Yet that some strange effect had been produced by the manipulation can scarcely be doubted. The sudden hemiplegia of the opposite side of the body seems to me an exaggerated resemblance of the giddiness and disposition to fall forward which the other patient had experienced, and that the change was the effect of the manipulation I have no doubt, particularly on comparing the one case with the other in these features. If this sudden attack were irrespective of my interference, it was certainly a strange coincidence. Supposing it really to have been the effect of manipulation, it may be admitted as an alarming result; yet it is probable that the circumstance gives corroboration to my views, for it is possible that in the manipulation some of the broken-down fibrin may have been squeezed towards the mouth of the vertebral or carotid arteries, and so, being carried up to the brain, produced hemiplegia in the manner suggested by Dr. Kirkes in a paper read to this Society in May, 1852, wherein he supposes the probability of fibrin from the valves of the aorta being carried along mechanically in the blood having had this effect.

The gradual diminution in the size of the tumour in this case keeps up a resemblance to the other, and the ultimate disappearance accorded, in most respects, with my most sanguine anticipations. Here, however, as in the other instance, I must admit my inability to explain why the tumour should

have remained so long after the supposed immediate effects of the manipulations.

Whether these cases illustrate practically and satisfactorily the views which I have broached in the early part of this paper, I must leave others to judge. My own opinion is, that in many important respects they do. At any rate, no such data have, in as far as I know, been hitherto laid before the profession.

It may be said, in both instances, the remedy, granting it to have had its effect, was likely to have proved as bad as, if not worse, than the disease; but it will be observed that in one case the giddiness soon ceased, and that in the other the hemiplegia produced no evil results afterwards, having left no permanent mischief. Besides, supposing the practice to be tried in other vessels than those of the neck, no such evil need be apprehended; and admitting the worst view of this remarkable effect, it must be borne in mind that these two aneurisms were of a kind never yet cured by the Hunterian operation, and which, sooner or later, inevitably runs to a fatal end.

CASE

IN WHICH

A LARGE CYST

WAS SUCCESSFULLY REMOVED FROM

THE UPPER PART OF THE NECK OF A YOUNG WOMAN, AGED 27, WHO WAS CONSIDERED AT BIRTH TO HAVE BEEN THE SUBJECT OF SPINA BIFIDA.

BY

SAMUEL SOLLY, F.R.S.

Received Oct. 22d.—Read Dec. 9th, 1856.

THE case which I have now to bring before the Society is one of rare interest, and stands, I believe, alone, whether it be considered as an instance of the cyst of a spina bifida occluded from the spinal canal at an early period, or as a case of an aqueous tumour originally connected with the occiput.

Its appearance, and the history I received of it from Mr. Girtin, of Canonbury Square, Islington, the medical man who brought this child into the world, the opinion entertained of its nature at the time of birth by Mr. Vincent and Mr. Abernethy, and subsequently by Sir Astley Cooper and Mr. Key, gave me the impression that its origin was spinal; and until, in a conversation with Mr. Prescott Hewett, it was suggested that it might have sprung from

the cranium, I had no reason to doubt the correctness of this view of its pathology.

Since then I have again seen and discoursed with Mr. Girtin. He says that he distinctly examined it in company with Mr. Vincent, in reference to this very point, and he asserts positively that it was not connected with the occiput; nevertheless, he and Mr. Vincent may have been in error, and I must leave the question undecided.

During the month of August, 1856, E. J. B—, æt. 29, a fair, delicate-looking young woman, consulted me by the advice of Dr. Waller, on account of a tumour on the back of her neck. I was struck with her appearance. The head was much flattened on the sides, and projecting in the frontal region to an extent which indicated slight hydrocephalus, but the countenance was bright and expressive, and the intellect perfect. The mother attributed this flattened form of head to pressure when an infant, as the head at that time always rested on one side. The tumour, which was hard and unyielding, about the size of a goose's egg, flattened anteriorly, hung by a broad, thick band to the upper part of the neck a little below the occiput. She suffered no pain in it, but it was inconvenient from its weight and position, and having a prospect of marriage she was very desirous of its removal. From the mother, who is an intelligent, well-educated lady, I obtained the following history, and outline of her appearance shortly after birth:

When she first came into this world the tumour was about the size of her head, measuring ten and a half inches across transversely, at its connection with the neck, and fourteen inches longitudinally. The lower part was of a dark colour, the skin being apparently very thin. Fluid frequently oozed from the lower part. It continued to increase until July, 1830; that is, for the first three years of her existence. During the year 1832 it decreased nearly three inches, and continued to decrease until November, 1833, six years after birth. Until two years of age she was exceedingly weak, and her left arm and leg were often

much swollen. For a long while she was only moved when absolutely necessary, as any alteration in the position of the upper part of the body appeared to cause considerable pain. When about two years and a half old her health began to improve, and at four years and three months she was able to walk alone. She had measles and hooping-cough when about six years of age, very mildly. At twelve she had scarlet fever, which much reduced her. Three or four weeks after this she had a fit, preceded by such violent pain in the head that she became delirious. Her mother says she now gave her up for lost; but the medical attendant, Dr. Manley, of Barking, bled her from the arm, and the relief was immediate. After this she slept soundly for more than seven hours, and awoke quite calm and free from pain, unconscious of all she had suffered. She rapidly recovered, and has since enjoyed uninterrupted health.

She was taken to Mr. Vincent, late surgeon at Bartholomew's, when three days old; he then declined doing anything, saying that it was a case of spina bifida; but on seeing her again, a few months after, he pressed much the plan of puncture and bandage; not, however, giving much hope of recovery, the parents would not consent.

When about eighteen months old she was taken to Mr. Abernethy, who told them that it was a case which did not occur once in a century, and advised that nature should take her course, and he repeated the some advice on a second occasion.

In January, 1839, by the advice of Mr. Winstone, of Charterhouse Square, Sir Astley Cooper and Mr. Aston Key saw the case; they recommended its removal, but the parents then refused to have the operation performed.

From the whole of this account, and from its appearance, I felt little doubt of its cerebro-spinal origin, and that the question of removal required great consideration. The tumour had diminished so much since birth, and was so firm and unyielding that, by pressure, I could detect no cavity within. Of the solidity of the peduncle I had no doubt, and as I could distinctly feel the arches of the

cervical vertebræ underneath, I felt certain that the occlusion of the canal of communication was complete. No manipulation gave any pain or inconvenience to the nervous system. Taking therefore everything into consideration, I decided upon the performance of an operation for its removal, and in this resolve I was confirmed by the opinion of my friend and neighbour, Mr. John Adams, of the London Hospital, who carefully examined the tumour with me.

On the 25th of August, 1856, I removed this tumour, my patient having been chloroformed by my friend, Mr. Walter Tyrrell.

I dissected up a short flap from the upper part of the peduncle, and then cut through it perpendicularly downwards. The hæmorrhage which followed was very free. Six rather large vessels required ligature, besides another which I stopped by torsion. Even then there was considerable oozing, which was ultimately arrested by ice and pressure, and with matico in direct contact with the wound; after the operation she remained tranquil and free from pain, but she complained of a slight sensation of numbness down the right arm; this entirely subsided in about six hours after, and she was quite comfortable in the evening. She did not sleep much during the night.

August 26th.—6 a.m. Suffering a good deal from shooting pains in the head, which she attributed to the bandage; but when the bandage was removed the next morning, the pain did not abate. She enjoyed her breakfast this morning. Pulse good, countenance natural.

27th.—Slept well. The pad and matico removed from the wound. No return of numbness in the arm. Towards the evening there was a return of hæmorrhage, requiring the pad and matico to restrain it.

28th.—This morning there was a slight return of the shooting pain in the head and shoulders; but the wound is discharging freely, and looks healthy. Slight oozing took place again during the night.

29th.—This morning the oozing was found to have been caused by a small piece of matico which had been left in

the wound; she is in much less pain to-day, but her head is worse when in the recumbent position.

30th.—The wound, at the upper part especially, is looking sloughy, so that a poultice was applied. The pain still continues, and appears to be slightly hysterical. She did not sleep well during this night, as the pain troubled her so much, as also during the day.

September 1st.—Her appetite began to flag, owing to want of sleep and the continual pain. She was ordered—

Hydrarg. Chlor., gr. ij;
Ext. Aconiti, gr. j;
Opii, gr. ¼; bis die.

2d.—Pain is, she thinks, less, though it still troubles her very much. Bowels are not very open. Tongue furred. Ordered a purge; this gave her great relief, and she slept better than she had done for some time.

4th.—The pain recurred again with renewed violence, and the bowels again became constipated; this is probably due to the opium, as she obtained great relief from a purge. From this date she continued to improve from the state in which she had been; and on the

7th.—The wound was looking very healthy, and the edges were gradually closing in; at the upper part, however, a slough still existed, and it seemed as if it extended some depth. Her health is now better, though she still suffers from occasional paroxysms of pain.

10th.—She now sits up in the drawing-room, and finds relief from the change of scene. Wound closing fast. Slough still remains, however. Continues poultice.

13th.—Is improving fast, though she still has attacks of pain at intervals. Appetite is now good. She has had no return of the numbness of the arm. She is to go into the country on Monday next.

15th.—She left London, the wound being then in a healthy state, though still having a slough at the upper part; the lower portion, however, was granulating healthily, and the edges were closing in fast. In health she was much improved, though still suffering pain at times.

October 23d.—She has gone on since the last report without a bad symptom; the wound has not quite closed, there is a spot about the size of a small bean remaining.

Examination of the tumour.—A longitudinal section through the centre exposed a large cavity in the interior, the walls of which were about the third of an inch in thickness. The cavity appeared to be about a third smaller than the tumour. In removing this section I was obliged to use a saw, in consequence of the walls containing firm calcareous plates, as designated in the drawing. The cyst was filled with a viscid fluid of a yellowish colour, not unlike white of egg. The cyst itself was entirely closed, but the line of junction with the spinal canal could be clearly traced by a whitish-yellow line of ligamentous tissue running through the peduncle. The interior lining of the cyst was smooth, except in the situation of the calcareous deposits.

Some of the ligamentous structure from the peduncle, which apparently filled the old canal of union between the tumour and the vertebral canal, presented, under the microscope, the usual characters of the yellow elastic tissue. The tissue, which forms the immediate wall of the cyst in contact with the lining membrane, looked and cut exactly like cartilage; but under the microscope it exhibited nothing but a dense fibrous tissue, containing, interspersed through its meshes, calcareous granules, which disappeared on the addition of acetic acid. The calcareous plates consisted of carbonate and phosphate of lime, not shaped into bone-tissue.

I am indebted to my friends, Mr. Sydney Jones and Mr. Tyrrell, for a microscopic examination of the tissue.

ON

THE DETERMINING CAUSES

OF

VESICULAR EMPHYSEMA OF THE LUNG.

BY

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Received Oct. 22d, 1856.—Read Jan. 13th, 1857.

SINCE the attention of physicians was fixed on vesicular pulmonary emphysema by Laennec, and the anatomical character of the disease demonstrated by that pathologist, the question as to the determining cause of the dilatation of the air-cells has been a fruitful source of controversy. The question to be decided is one of much practical interest; for as vesicular emphysema is incapable of cure its prevention is of the highest importance, and to determine its cause is to determine the possibility of its prevention, and to some extent the means to be employed for its prevention.[1]

[1] If the advocates of the theory now generally received, and which has been termed the inspiratory theory, be correct, then powerful expiratory efforts, so far as concerns the production of emphysema, are invariably to be encouraged as essentially preservative, the inspiratory efforts only are to be moderated. "Die Causalindication besteht . . . . in Vermei-

That vesicular emphysema may occur in lungs, the texture of which is otherwise perfectly healthy, is beyond doubt; we see examples of this daily in the acute vesicular emphysema of children. But then it is equally beyond doubt that in certain varieties of vesicular emphysema, *e. g.* that in which one or more vesicles at the apex or margin of the lung are greatly enlarged—the texture of the distended vesicles is constantly abnormal. Mr. Rainey[1] has rendered it highly probable that fatty degeneration of the tissue of the lung is one of the anatomical conditions on which loss of its elasticity and contractility depend. While my own observations have led me to the conclusion that the most frequent anatomical change of the lung having this result is fibrous degeneration, the consequence of the exudation of that variety of lymph which escapes from the capillaries where they are seat of slight, but long-continued congestion, in a person of tolerably healthy constitution. So common is the exudation of this variety of lymph in the congestions of old persons, that the changes of tissue which result from its presence are to be reckoned among the degenerations incident to old age. The loss of elasticity and contractility and permanent dilatation of the part which is its seat, if subjected to a distending force, is well illustrated by a reference to the large size so often attained by varicose veins when their walls are the seat of this degeneration.

The contractile power of the lung being impaired, it is evident,—that every single forcible distension of the air-cells must be followed by a certain degree of permanent dilatation; that an amount of expansion of the cells which would

dung inspiratorischer Anstrengungen, welche die gewaltsame Ausdehnung der Luftzellen steigern können." (Canstatt's 'Specielle Pathologie und Therapie, Band ii, p. 636.) If the expiratory theory, which I advocate, be correct, then the great object of the physician, so far as concerns the prevention of emphysema, must be to moderate, in many cases at least, the violence of the expiratory efforts. Persons disposed to emphysema or affected to a slight degree with that disease must avoid occupations which necessitate expiratory efforts with a closed glottis, *e. g.*, carrying great weights, powerful pushing or pulling.

[1] 'Medico-Chirurgical Transactions,' vol. xxxi.

be instantly removed by the normal contractile power of the lung-tissue,—must, if that contractile power be seriously diminished, require only to be frequently repeated to lead to extreme vesicular emphysema. The air-cells, whether their walls be or be not healthy, can be distended, so far as we know, by one power only, viz., the pressure of air on their inner surface, but then the air may be driven against their walls, both during inspiration and during expiration. Hence two theories of the determining cause of emphysema of the lung, termed, respectively, the inspiratory and the expiratory theory.

The inspiratory theory. Atmospheric pressure may be brought to bear with undue force on the inner surface of the air-cells by the enlargement of the capacity of the thorax during inspiration being disproportionate to the capacity of the air-cells. Some portions of the lungs being from collapse or other cause diminished in volume and incapable of dilatation, then as the lungs are kept in contact with the thoracic parietes during inspiration by the pressure of the atmosphere expanding the air-cells, and so increasing the bulk of the organs, the obliteration and diminution in size of one or more air-cells necessitates (*supposing* the enlargement of the capacity of the thorax in inspiration to continue the same as with healthy lungs) abnormal expansion of the unobliterated air-cells.

This theory of the determining cause of emphysema is essentially that of Williams, Elliotson, Watson, Hasse, Rokitansky, and others. It was moulded into its present exact form by Dr. William Gairdner, and strongly supported by him in a series of very able papers published in 1850. Dr. Gairdner maintains, that the inspiratory theory admits of universal application, and that no other reasonable explanation can be offered of the mode in which the dilatation of the air-cells is effected. The views of Dr. Gairdner on this point have been adopted almost without question by the latest writers on the subject, *e. g.*, Rilliet and Barthez 'Maladies des Enfants,' t. i, p. 601; Sieveking (Jones and Sieveking's 'Pathological Anatomy,' p. 411).

Nor do I deny that in some cases a certain amount of dilatation of the air-cells is determined by inspiration.

The expiratory theory.—The object of this paper is to show that by far the most common and efficient cause of vesicular emphysema of the lung is the pressure of the air contained in the lung brought to bear on the inner surface of the air-cells by the expiratory efforts.

The expiratory theory I am about to advance is altogether different from the erroneously termed expiratory theory of Laennec.[1]

Powerful expiration is, it seems to me, infinitely the most frequent determining cause of acute vesicular emphysema and of the chronic vesicular emphysema which accompanies chronic bronchitis. It is probably the constant determining cause of the vesicular emphysema which supervenes on chronic congestion of the lungs and bronchial tubes, and on diseased heart, and of the atrophous emphysema of the aged. In like manner, expiration appears to be the invariable determining cause of vesicular emphysema whenever it is considerable in degree and general, or occupies chiefly or only the apex and border of the lung, and whenever the dilatation of one or more vesicles is extreme.

It has been asserted that during expiration every part of the lung is equally compressed, and, therefore, that the cells of no one part can be over distended. Dr. Gairdner observes:

"But the most serious objection to the expiratory theory

[1] Laennec's is in reality an inspiratory theory. Starting with the assertion that the inspiratory force is greater than the expiratory, he states his theory thus, "l'air, après avoir forcé la resistance que lui opposait la mucosité ou la tuméfaction de la membrane muqueuse bronchique, ne peut la vaincre dans l'expiration, et se trouve emprisonné par un mécanisme analogue à celui de la crosse du fusil à vent. Les inspiration suivantes, ou au moins les plus fortes d'entre elles amenant dans le même lieu une nouvelle quantité d'air, produisent nécessairement la dilatation des cellules aériennes auxquelles se rend la bronche oblitérée." ('Traité de l'Auscultation Médiate,' tom. i, p. 302.) As the temperature of the air in the lungs is considerably above that of the external air, its dilatation after entering the air-cells must tend still further, Laennec fancied, to over distend the air-cells.

is that the expiratory act is mechanically incapable of producing distension of the lung or of any part of it. The act of expiration tends entirely towards emptying the air-vesicles by the uniform pressure of the external parietes of the thorax upon the whole pulmonary surface; and even when the air-vesicles are maintained at their maximum or normal state of fulness by a closed glottis, any further distension of them is as much out of the question as would be the further distension of a bladder blown up and tied at the neck by hydrostatic or equalised pressure applied to its entire external surface. The air-vesicles can sustain no distending pressure from the column of air within the tubes, as that air only becomes compressed in virtue of a force which opposes exactly as much resistance without as it creates pressure within. It is singular that a theory so radically unsound and so devoid of proof should have been allowed to maintain a place in medical literature." ('Monthly Journal of Medical Science,' v. xiii, p. 10.

But is it true that during expiration every part of the lung is equally compressed? Is it true that every part of the thoracic walls are during powerful expiratory efforts equally unyielding?

We have only to watch a person whose chest is exposed during a fit of coughing to see what a consideration of the anatomical constitution of the thoracic parietes would *à priori* lead one to assert, viz., that the answer to both these questions must be in the negative.

Before coughing a person makes a deep inspiration, *i. e.* he distends as far as possible the air-cells, he then closes the glottis and compresses forcibly the lungs by the thoracic and abdominal parietes, the moment the compression of the lungs has attained a certain point, he opens more or less the glottis, and the air is driven forward by the muscular effort and the elasticity and contraction of the lungs and of the thoracic walls with a force proportionate to the compression to which it was subjected before the opening of the glottis.

Now it is manifest that if there be parts of the thoracic walls which are more yielding, or which during powerful

expiratory efforts with a closed glottis contract less than others, that the air immediately before the opening of the glottis will be driven from the compressed portions of the lung into the air-vesicles of the lung situated under such parts of the walls with a force proportionate to the general muscular and other powers in play, to the local want of compression and to the degree of yielding of the walls at those particular spots. That there are such parts, and that they are exactly those which are most frequently the seat of vesicular emphysema, and the sole seats of extreme dilatation of the air-cells is demonstrable.

Above the first rib the lung is covered only by soft tissues, and certainly, compared with the part of the lung situated below the level of the second rib, it is subjected during ordinary respiratory efforts to very little external compression.

The air-cells of the lung above the first rib being then surrounded by comparatively yielding walls, and being comparatively or absolutely uncompressed during expiration, ought, one would *à priori* suppose, to be distended to the utmost when powerful expiration is made with a closed or imperfectly opened glottis; the air being necessarily driven from the compressed to the comparatively uncompressed parts of the lungs. And that during violent expiration with a more or less closed glottis, the air is actually driven into the lung-vesicles of the apex with power enough to distend them to the utmost, is demonstrated by the supra-clavicular bulging which may be seen during a fit of coughing; and the hand has only to be placed upon the same part to prove that the lung-tissue subjacent is, during strong expiration, distended by a considerable force. Percussion proves that the bulging to which I refer is pulmonary. If the apex of the lung be the seat of emphysema then the supra-clavicular bulging during violent expiration is extreme, and percussion on the bulging part elicits an almost tympanitic sound.[1]

[1] The force which is exerted on the walls of the air-cells when the glottis is closed and powerful expiratory efforts made is also shown by

The cells of the anterior margin of the lung are, like those of the apex, forcibly distended when violent expiratory efforts are made with the glottis closed, or imperfectly opened. The expiration of coughing is performed chiefly by the abdominal muscles forcing up the diaphragm, the ribs compressing the lungs laterally, and the sternum and the cartilages of the ribs anteriorly. But the cartilages are to some degree yielding, and the anterior margin of the lungs is to a considerable extent protected from direct pressure by the heart and great vessels; the consequence is, that the air is driven during violent expiration from the parts most compressed (*i. e.*, the central, basic, and lateral parts), into the air-cells of the anterior margin, as well as into the air-cells of the apex.

Again, the margin of the base of the lung, the part of the lung in the vicinity of the root of the organ below the entrance of the bronchus, and the little ridge of lung which lies behind the trachea on the right side forming the posterior margin of what may be termed the tracheal groove on the lung, are in a like manner imperfectly supported and comparatively uncompressed during violent expiration. The base, too, of the left lung generally, is less firmly supported than is the corresponding part of the right lung—the liver being a more unyielding organ than the stomach, and compressing the base of the right lung more uniformly than the spleen and stomach do that of the left lung. The consequence of this want of support and of compression of the parts of the lung last enumerated is, that they, like the apex and the anterior margin, are the chosen seats of

the fact that during the expulsive efforts in parturition one or more air-cells occasionally give way, and the air finds its way through the posterior mediastinum into the cellular tissue of the neck and face. A case of this kind fell under my observation when a student. The woman, after a violent detrusive effort, in which necessarily the glottis was closed and the muscles of expiration called into action, suddenly exclaimed, "I am unable to see." Her face and neck were, I now found, the seat of subcutaneous emphysema.

emphysema;[1] the air contained in the parts of the lung most powerfully compressed during expiration with a closed glottis, being forced in undue quantity into such parts of the lung as are less compressed and less perfectly supported.

It is manifest that what has been above advanced, as to the effect on the air-cells of powerful expiratory efforts made when the glottis is partially closed, is equally true of the same efforts when made with one or more bronchial tubes partially closed. Dilatation of some of the air-cells beyond the tubes must ensue, if those cells be not uniformly compressed during expiration.

While, therefore, collapse of the lung is the consequence of complete occlusion of a bronchial tube, dilatation of the air-cells may be the result of imperfect occlusion.

The objection to the theory of Laennec, urged by Louis, viz., that the ordinary seat of catarrh is the base of the lung posteriorly, that of emphysema the apex and anterior margin, is unanswerable. The objection of Dr. Gairdner to the same theory, viz., that impermeability of a bronchial tube is followed by collapse of the pulmonary tissue from which it leads, is equally fatal to it. But then the conclusion of Louis from his facts, viz., that there is no relation between catarrh and vesicular emphysema by no means necessarily follows. The relation between the two is, that catarrh excites frequently repeated violent expiratory efforts, with a more or less perfectly closed glottis, and therefore is one of the exciting causes of repeated over-distension of these air-cells, which during these efforts are the least supported and compressed. Catarrh, then, of the base of the lung posteriorly, may be the exciting cause of vesicular emphysema of the apex and anterior margin, and Louis's conclusion as to the necessary want of relation between catarrh and vesicular emphysema, because they affect different parts of the lung, is manifestly illogical.

[1] Louis found the lower lobe of the left lung twice as often the seat of emphysema as the corresponding lobe of the right lung; while the apex of the right lung was more frequently affected with emphysema than the apex of the left lung.

Dr. Gairdner's conclusion, viz., that obstruction of a bronchus, because it is sometimes followed by collapse of the air-cells, cannot be a determining cause of rarefaction of the part of the lung from which it leads, is equally untenable. For incomplete occlusion of the bronchi may have, and in some cases I believe does have, a result the reverse of perfect occlusion, and in catarrh and bronchitis imperfect occlusion of the tubes is the rule, perfect occlusion the exception.

The notes of three cases will suffice to illustrate the points dwelt on in this paper—the facts are so common and so patent to every observer, that it would be useless to give more.

Mrs. L—, æt. 63, tall, thin; suffered from winter cough; was "asthmatical on exertion;" the chest was small in circumference, but long; the intercostal spaces were wide, and fell in during ordinary inspiration; there was some recession of the supra-clavicular regions during inspiration. On coughing there was great bulging of the supra-clavicular regions, especially the right. On percussion, the bulging part gave out an almost tympanitic sound. Two days after the foregoing observation the lady died suddenly of fatty degeneration of the heart. The apices of the lungs were the seat of extreme local emphysema.

H. C—, æt. 46, a patient under my care in University College Hospital, suffering from dry pleurisy and emphysema. The subjoined note was taken a day or two after admission. The cough is more troublesome, and there is a large amount of sonorous râle, audible during expiration, over both sides of the chest anteriorly. Below the prominence opposite the second costal cartilage the sternum recedes during each inspiration; in the act of coughing it advances with each expiratory succussion; there is marked depression of the supra-clavicular regions during each inspiration, and marked bulging during each expiration. The infra-clavicular regions also advance during the expira-

tion of coughing. The expiration of coughing is chiefly effected by the abdominal muscles, and these are called into play even as low as the pubes.

Catherine C—, æt. 1 year 9 months, was admitted under my care into the Hospital for sick children suffering from Croup. The following note was taken in the morning as she died in the evening.

Respirations 36, noisy; inspiratory and expiratory sound, as heard by the bedside, husky, hoarse. Expiration much longer than inspiration; cough frequent, hoarse, croupy, singing. During inspiration there is recession of the supra-clavicular, infra-clavicular, and supra-sternal regions of the sternum and costal cartilages below the second, and of all the intercostal spaces. During expiration there is bulging of the supra-clavicular region, and prominence of the infra-clavicular and upper sternal regions. No physical signs of bronchitis. The child died the same evening; and on examination of the body, there was found, in addition to the false membrane in the larynx and trachea, vesicular emphysema of the anterior margin of both lungs, especially strongly marked in the parts overlapping the heart and great vessels, and at the apices. There was scarcely a trace of collapse of any part of the right lung, but several small patches of collapsed tissue in the inferior lobe of the left lung. The emphysema was as great of the right as of the left lung.

During the cough, which takes place in a fit of hooping-cough, the same supra-clavicular bulging, advance of the sternum, &c., as were observed in the above case, are well seen, as are, during the hoop, the recession of the supra-clavicular region, of supra-sternal region, &c.

I may sum up the position I have taken in regard of the question as to the determining cause of vesicular emphysema of the lung, thus:

1. The lung during expiration is compressed at different parts with different degrees of force.

2. The parietes of the thorax, in consequence of their

anatomical constitution, yield to the same force at different parts with various degrees of facility.

3. The chosen seats of emphysema are exactly those parts of the lung which are the least compressed during expiration, and the least affected by inspiration, and which are situated under those portions of the thoracic parietes that give way the most readily before pressure.

4. The power possessed by man of dilating the apex of the lung by inspiratory effort is altogether insufficient to distend the air-cells to the degree to which they are often found to be distended in local emphysema of the apex.

5. That the air-cells of the apex can be distended very considerably and with force during expiration is matter of demonstration; for in violent coughing we may see the elevation of the supra-clavicular region, the advance of the upper part of the sternum, and of the intercostal spaces generally during each expiratory succussion, the bulging parts being resonant on percussion.

6. When an impediment exists to the entrance of the air into the lungs and to its egress from the lungs, as in croup and in hooping-cough, the thoracic walls over the parts of the lungs, which after death are found emphysematous, recede during inspiration and advance during expiration.

7. In the cases last mentioned the more violent the inspiratory efforts the greater the recession of the parts of the parietes referred to, and the more violent the expiratory efforts the greater their advance.

8. When the apex is the seat of calcified or of obsolescent tubercle, lymph is exuded around and into all the tissues of the apex. Some air-cells are obliterated and the elasticity and contractility of the tissues generally is either diminished or lost.

9. Under the circumstances last specified dilatation of the unobliterated cells by the air driven into them during violent expiration with a closed glottis attains its maximum.

10. Under the same conditions in the same situation, the inspiratory force is altogether insufficient to cause dilatation of the air-cells.

11. The atmospheric air moved by the inspiratory effort can exert comparatively little pressure on the inner surface of the air-cells situated at the extreme margin of the base, the root of the lower lobe (*i. e.* that part immediately next the spine and below the primary bronchus) or at the part of the apex situated in the furrow posterior to the trachea on the right side. While violent expiration, being chiefly performed or greatly aided by the abdominal muscles forcing upwards the liver, &c., drives the air (in consequence of the highly arched form of the diaphragm in violent expiration) from the central part of the lung, not only through the bronchi towards the larynx, but also towards the circumference of the lungs, *i. e.*, towards those parts which are the least compressed during expiration.

12. In the parts just named dilatation of the air-cells is extremely common, and the dilated cells are often of large size.

13. While complete obstruction of a bronchial tube is followed by collapse of the pulmonary tissue on its distal side; partial closure of a tube has as its consequence dilatation of some of the air-cells of the part of the lung from which it leads, provided that part be unequally supported and compressed during expiration.

14. Vesicular emphysema is the invariable and necessary consequence of whatever impedes the free exit of air from the lungs, and at the same time excites powerful expiratory efforts; because by such efforts the air is driven from the more powerfully compressed parts of the lungs into those parts which are less powerfully compressed and the walls over which yield more or less readily to pressure.

Postscript.—If the view of the determining cause of emphysema advanced in this paper be correct, then in the lower animals subject to pulmonary vesicular emphysema the disease ought to be found to affect especially those parts of the lungs which in them are, during expiratory efforts with a closed glottis, the least compressed, and which are situated under those parts of the thoracic walls that are the least

capable of offering resistance to pressure. To ascertain whether it is so or not, I examined, a day or two since, with the assistance of Mr. Henderson, the veterinary surgeon of Great Scotland Yard, five horses, the lungs of which were emphysematous. In four of the five horses the anterior lobes only, and that part of the inferior lobe of the right lung which is protected by the trachea were affected; in the fifth, in addition to these parts, the margin of the inferior lobe.

Now the anterior lobe of the lung in the horse is situated above and over the heart, under the four upper ribs. It is placed, that is to say, in a part of the thorax where it can during expiration be subjected to very little external compression. So the part of the right lung, which in all five horses was emphysematous, was protected from compression by the trachea. In the lungs which were the most emphysematous there was no evidence of other disease, so far as I could judge, no trace of recent or of old collapse.

The frequency with which horses suffer from emphysema is of course attributable to their being so often compelled to make (in pulling, &c.) powerful expiratory efforts with a closed glottis. One would expect to find all animals (man among the others), engaged in occupations necessitating continued and repeated expiratory efforts with a closed glottis, more subject to pulmonary vesicular emphysema than others of the same class, *e.g.*, draught oxen rather than milch cows.

FIVE CASES

OF

TRACHEOTOMY IN CROUP,

WITH REMARKS ON CERTAIN POINTS CONNECTED WITH THE OPERATION.

(With a Postscript containing two additional Cases.)

BY

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THE propriety of performing tracheotomy in croup has been called in question by many eminent members of our profession, and much difference of opinion has been expressed in regard to several points relative thereto. I propose, therefore, to offer a few remarks on two cases in which the operation has been performed successfully at St. George's Hospital, and on three in which it failed in its object. By so doing I hope to elicit the opinions of those whose experience has been more extensive than my own on this most important practical subject, and at the same time to furnish additional grounds on which to base a just estimate as to the propriety of the operation, the proper time for performing it, and the conditions essential to its success.

The following case which fell under my own care at the hospital will furnish an appropriate text for my remarks:

CASE 1.—Elizabeth W—, æt. 8, was admitted into the Crayle Ward at 1·30 p.m. on September 24th, 1856.

She had enjoyed good health up to the 20th instant, when she complained of sore throat, which, on the following day, was accompanied by cough, and considerable distress of breathing. A medical man was sent for, who pronounced it croup, ordered some medicine, and applied a few leeches to the throat. No improvement resulted, and the next morning, therefore, the throat was blistered. Still no relief was obtained; and about 5 a.m., on the morning of the 24th, the dyspnœa became much more urgent. From this time the symptoms rapidly increased in severity, and at 1·30 p.m., when she arrived at the hospital, she was gasping for breath; her countenance was pale; the lips were rather livid; the pulse was imperceptible, and she was covered with a cold clammy perspiration. After recovering from the fatigue of the journey, she rallied slightly, but the dyspnœa continued excessive; there was frequent gasping for breath; the voice was almost inaudible; the cough was entirely suppressed; the jugular veins were turgid; and the pulse could only just be felt. It was 140 in the minute, very irregular, and intermitted frequently. The person who brought the child to the hospital stated that an emetic had not been administered, and as I was unwilling to have recourse to tracheotomy until every other means of recovery had been tried, I ordered an emetic composed of tartarized antimony and ipecacuanha to be taken immediately. It acted speedily, and resulted in the bringing up of a little thin mucus, and three small shreds of white false membrane. This, however, did not relieve the breathing, and as suffocation was imminent, I requested my colleague, Mr. Pollock, to perform tracheotomy. This he did most skilfully at a quarter past three o'clock. There was very little hæmorrhage either during or after the operation, and the relief afforded was immediate. The moment the incision was made, several plugs of white false membrane were coughed up through the wound, and the little patient fell asleep on the table even before the introduction of the tube. Subsequently a double canula was inserted through the wound, and the breathing went on calmly and regularly.

As the bowels had not been moved for two days, a brisk purge of scammony and calomel was given immediately, and two grains of calomel with six of chalk were administered every four hours. A saline draught was also ordered to be taken at the same time, containing eight minims of antimonial wine. Further, an experienced nurse was kept by the bedside day and night for the purpose of watching the patient, and removing any mucus or other matter which might chance to obstruct the canula. The child slept at intervals during the night, and was much easier the next day, but the bowels had not acted since her admission, and a senna draught was therefore administered. The remedies previously ordered were continued up to the 27th instant, when, as the chief symptoms were subsiding, the draught and powders were repeated only three times daily. On the 29th, the remedies were discontinued, as there remained no symptom requiring their administration. From the time of her admission up to the evening of the 27th, white croupy matter mixed at first with thin mucus, and afterwards with thick muco-purulent matter, was ejected in considerable quantity through the canula, but no false membrane was seen subsequently to that date. On several occasions she had suffocative paroxysms resulting from temporary obstruction of the canula, and on the night of the 26th, she had a severe attack of dyspnœa, which lasted about a quarter of an hour, and ceased on the withdrawal of the tube; but with this exception the case did not present an untoward symptom from first to last. The cough and thick muco-purulent expectoration, which remained after the 29th instant, was relieved by a little squill mixture; the wound healed kindly, and my little patient left the hospital in perfect health on the 14th of October.

I have been thus precise in narrating the details of this case, because they bear on various points to which I shall have occasion to refer, as exercising an important influence on the successful issue of croup cases requiring operative interference.

The other four cases were under the care of my colleagues at the hospital, and to their kindness I am indebted for leave to make use of them on the present occasion.

Case 2.—Hannah C—, æt. 5, was admitted into the Holland Ward, under the care of Dr. Bence Jones, at 1·30 p.m. on the 3d of October, 1854. She had been attacked with croup nine days previously, and in spite of medical treatment the symptoms had gradually increased in severity. On admission her breathing was stridulous, and her distress considerable; but the pulse was tolerably good, and there were no very urgent symptoms of suffocation, so it was determined to apply some leeches to the throat, and to try the effect of a brisk emetic, followed by calomel, salines, and tartarized antimony. No relief, however, was thus obtained. By 8 p.m. the urgency of the symptoms had greatly increased, and it was evident the child would speedily sink if immediate relief were not afforded by tracheotomy. Already she was gasping for breath, and was cold, pale, and unconscious, and the pulse, which could scarcely be felt, intermitted frequently. Mr. Hewett was, therefore, called upon to open the trachea. Considerable hæmorrhage occurred during the operation, and some blood trickled into the windpipe, causing violent paroxysmal cough and dyspnœa. During one of these fits of coughing a mass of tough, white, albuminous concretion was seen through the lips of the incision. This was seized with the forceps and dragged out, and in this way two large pieces were removed from the trachea, one of which measured nearly three inches in length. A large tube was then introduced through the opening, and all hæmorrhage speedily ceased. The child, however, was so much exhausted that it was judged expedient to administer a small quantity of wine and water. Subsequently the calomel, salines, and antimony were continued as before.

The breathing was greatly relieved by the operation, the pulse soon improved, and the child fell into a dose. During the night she had several severe paroxysms of cough and

dyspnœa, and some hæmorrhage recurred, which was stopped by the application of a styptic. The next morning, however, the breathing was much more free; her countenance was tranquil and of a natural colour; she had a tolerable pulse, and was much improved in every respect. From this time she made steady progress; the tube was removed on the fifth day; the wound healed kindly, and she left the hospital in perfect health on the 25th of October.

Case 3.—Maria G—, æt. 16, was admitted under the care of Dr. Bence Jones, at 6·30 p.m. on the 23d of March, 1855. She was a stout, plethoric girl, and had suffered from cough, hoarseness, and more or less shortness of the breath ever since the 19th instant. Nevertheless, she had not undergone any medical treatment prior to her admission into the hospital. She was then suffering greatly from dyspnœa and pain in the chest; the breathing being very rapid and shallow, but not accompanied by much stridulous noise. The pulse was quick and sharp. Leeches were applied to the chest, an emetic was administered, and salines with tartarized antimony were prescribed every four hours. She had two attacks of suffocative dyspnœa during the night, which subsided without the ejection of any false membrane, and the next day the face was flushed, and the pulse 130, and sharp. Leeches were, therefore, applied again to the chest, and the mixture was repeated every two hours. The dyspnœa, however, increased towards evening; the lips became blue; and the pulse much more feeble. The breathing was now unaccompanied by stridor. On the morning of the 25th, she was weaker; the dyspnœa was very great, and was aggravated in paroxysms; and the lips were excessively blue. At 8 p.m. laryngotomy was proposed, but eventually, at 10 p.m. tracheotomy was performed by Mr. Hewett. At the time of the operation the pulse was imperceptible; the lips were no longer blue, but pale; and she was bedewed with a cold perspiration. Soon after the opening was made she coughed up a considerable quantity

of blood, which had trickled into the trachea during the operation, and almost instantly expired. Artificial respiration was performed in vain. After death the trachea was found to contain about two drachms of blood partly fluid; the mucous membrane of the larynx and trachea was highly injected, and covered almost throughout by a layer of soft, yellow, albuminous exudation, and the epiglottis was similarly covered on its posterior surface. The fauces and œsophagus were in their natural condition. The lungs were very œdematous, and the lower lobes on either side were hepatized. The bronchial mucous membrane was especially vascular throughout, and was covered to a great extent by the same sort of soft albuminous matter which existed in the trachea. Many, even of the smallest bronchi, especially those leading to the inflamed and hepatized portions of the lungs, were full of this deposit.

The heart and other viscera were in a normal condition.

It is worthy of remark, in regard to this case, that neither in its history nor in its symptoms did it resemble a case of uncomplicated croup, and that although it was deemed advisable to have recourse to tracheotomy, the deep oppression and extreme shallowness of breathing, together with the cough, which had existed from the first, rendered it probable that the lungs were extensively affected, and that the operation would be unsuccessful.

Case 4.—Henry S—, æt. 5, was admitted, at 11 a.m. on the 24th of April, 1856, under the care of Dr. Nairne.

His mother stated that he had been quite well up to the 20th instant, when he complained of sore throat. Medical aid, however, was not had recourse to until mid-day on the 23d, when he was suddenly seized with dyspnœa. Leeches were applied to the throat and medicine was administered, but the next day the breathing was much more difficult, and the child was therefore sent to St. George's Hospital.

On admission the countenance was pale and anxious, the pulse quick and feeble, the respiration stridulous, the

dyspnœa urgent. An emetic, which was given directly, took no effect, and in the course of half an hour suffocation became so imminent, that it was determined to have recourse to tracheotomy without further delay. The operation was performed by Mr. Pollock, and as soon as the trachea was opened the child became more tranquil, and appeared to breathe without much difficulty. Soon afterwards he fell into a doze. The breathing continued tranquil throughout the day, the pulse improved, the countenance assumed its natural colour, and the cough, which recurred at intervals, led to the ejection of a considerable quantity of shreddy mucus and false membrane through the tube. One or two doses of saline and antimony mixture were given after the operation; but, beyond these one or two doses, no medicine was administered. He passed a tolerably tranquil night, and next morning was very much more comfortable; but in the afternoon the tube became obstructed, and great dyspnœa ensued. With a view to the introduction of a new tube, it was thought necessary to enlarge the opening into the trachea, and during this operation a good deal of blood escaped, some of which trickled down into the air-passages and caused excessive dyspnœa, which never ceased until the child died suffocated, shortly afterwards, *i. e.*, at 5·30 p.m. The post-mortem examination revealed ulceration of the soft palate and tonsils, and a thick layer of recent lymph on the latter. The mucous lining of the epiglottis and larynx was covered throughout with a similar very thick layer of false membrane, and the aryteno-epiglottidean folds were very œdematous. The lining membrane of the trachea was covered with a very thin layer of albuminous deposit mixed with stringy tenacious mucus and blood, and the membrane was stained of a red colour. The larger bronchi presented a similar appearance, but to a much less extent. The lungs were congested, and the smaller bronchi contained a good deal of thick mucus, mixed with blood.

In connexion with this case, I would merely remark on the

great relief afforded by the operation, on the length of time (about thirty hours), during which the respiration continued tranquil, and on the unfortunate accident which led to its interruption, and (probably by re-exciting inflammation) to the speedy occurrence of suffocation. The immense relief obtained by the operation seems to countenance the belief that the extensive albuminous deposit found after death, was poured out during the few hours preceding death, which were marked by the accession and continuance of dyspnœa. If such was the case, there was nothing in the condition of the parts at the time of the operation to preclude the chance of recovery.

Case 5.—Thomas D—, æt. $4\frac{1}{2}$, was admitted, under the care of Dr. Wilson, at 6·30 p.m., the 2d of November, 1856. He had undergone an attack of scarlatina about the middle of September, and had never since regained his health. On the 31st of October he was exposed to cold, and began to cough in the evening of the same day. On the 1st of November, however, he was well enough to play about as usual, and it was not until 7 p.m. on that day that unequivocal symptoms of croup presented themselves. Early on the morning of the 2d, he was seen by a medical man, who treated the case vigorously with emetics and calomel until 6 p.m., when, as the symptoms did not yield, he recommended the removal of his patient to the hospital. As the child had been barely twelve hours under treatment, and the dyspnœa, though considerable, was not as yet accompanied by any great degree of pallor or lividity of the countenance, it was judged expedient, for a time at least, to continue the administration of calomel and salines, and to give tartar emetic in quarter-grain doses. The child slept at intervals during the night, and though he had suffered one or two attacks of urgent dyspnœa, he appeared somewhat easier the next morning. Towards noon, however, the symptoms assumed an alarming character, and in a short time the countenance became ghastly pale, the eyes became fixed, and suffocation appeared imminent. Mr.

Hewett was therefore asked to perform tracheotomy, which he did at 1 p.m., and the operation was not attended by much hæmorrhage. The child was a good deal exhausted, but at 2 p.m., after coughing up a considerable quantity of mucus through the wound (no false membrane) he was greatly relieved, and fell asleep. Beef-tea, port wine in half-ounce doses, and cinchona, were ordered. Throughout the remainder of the day and the following night he seemed comfortable in every respect; he continued at intervals to cough up through the tube a considerable quantity of mucus, and each time he did so he manifestly obtained relief. During the intervals, the breathing, though quicker than natural, was performed without difficulty. Early on the morning of the 4th, however, his face became flushed and his skin hot, and by degrees some difficulty of breathing ensued. From this time the dyspnœa gradually increased, and at half-past three in the afternoon became urgent: no mucus or discharge of any kind came through the tube, which was removed without effect, and death from suffocation speedily took place.

Dissection showed the subcutaneous tissues round the tracheal opening indurated, and infiltrated here and there with purulent fluid; the pharynx exceedingly congested; the tonsils enlarged and hardened, and presenting old cicatrices and one or two small specks of recent ulceration on their surface; the epiglottis natural, but the larynx, and the trachea almost down to its bifurcation, lined with concrete albuminous exudation, which at the upper part of the windpipe was exceedingly firm, and formed a distinct cast of the tube; the bronchial lining membrane congested, and covered with thick mucus, and the right lung in one part passing into the early stage of red hepatization. The other viscera were healthy.

The principal points to which I would call attention in reference to this case are—the immense relief obtained by the operation, and the presumption thereby afforded that at the time of its performance the tracheal and pulmonary

obstruction was far less extensive than that found after death; the length of time during which the patient continued free from urgent dyspnœa; and the chances against the ultimate success of the operation, consequent on the patient's previous attack of scarlatina, and his subsequent ill-health.

Thus, then, it would appear from the result of the cases above detailed, that, whatever the theoretical objections to tracheotomy in croup, the operation is attended with a fair proportion of success, and that, unless the recoveries obtained through its agency at St. George's Hospital are quite exceptional, it ought to be had recourse to when other remedies have failed. But the experience obtained from such a limited number of cases is not of itself sufficient to determine the propriety of the operation, and therefore I propose to discuss the question generally, and to endeavour to bring together such facts as shall enable us to decide—1st. Whether the operation of tracheotomy is justifiable in any case of croup? 2dly. If so; under what conditions and at what stage of the complaint? 3dly. Whether the existence of certain symptoms or other circumstances ought not to cause us to hesitate in recommending its performance? 4thly. Whether any, and what medical treatment is necessary after an opening has been made into the trachea?

The first question which arises is, as to the propriety of the operation. Are we justified in recommending the performance of an operation which is admitted on all hands to fail frequently in its object, and as to the probable success of which in any given case we can obtain very little reliable evidence?

With a view to a correct decision on this subject, it is necessary to refer for a few moments to the various forms of acute disease which have been comprised under the name of croup, and to the great difference observed in their physiological and pathological effects. Excluding the so-called spasmodic croup, known more commonly as child-crowing, which can hardly be confounded with true croup, there are two affections, differing widely in their nature, which are deserving of especial notice. The one is idiopathic inflam-

matory croup, met with sporadically in this country and elsewhere; the other a diphtheritic affection of the throat, which is sometimes accompanied by croupal symptoms, and which, though comparatively of rare occurrence in England,[1] is exceedingly common in France, and often prevails there in an epidemic form. The former commences by inflammation, more or less extended, of the mucous lining of the air-passages, and is attended, in the majority of instances, by a concrete albuminous exudation into the larynx, trachea, or bronchi, one or all of these parts being affected; the latter begins by erythematous redness of the tonsils and fauces, with a more or less plastic exudation on their surface, and, as the disease progresses, the inflammation extends down into the pharynx, and passes sometimes into the nares, sometimes into the larynx, trachea, and bronchi, where it usually produces an albuminous exudation on the surface of the mucous membrane in no way distinguishable from that which accompanies inflammatory croup. In idiopathic inflammatory croup there is no external affection of the throat, whilst the diphtheritic form of the disease, like that which follows measles, scarlatina, and other of the exanthemata, is often accompanied by considerable glandular swellings and œdematous fulness about the neck, rendering tracheotomy a difficult operation. Moreover, the symptoms which accompany the latter form of disease very rapidly assume a typhoid character, so that a fatal issue may be looked for, quite irrespective of any impediment to the respiration. If then, in spite of the difficulties which surround it, the operation of tracheotomy is often crowned with success in this diphtheritic form of croup, much more are we entitled, theoretically at least, to hope for a successful issue in inflammatory croup.

Well! how stands the case as to the diphtheritic form of

[1] Although this is strictly true, diphtheritis does sometimes prevail epidemically even in England. A very severe outbreak of the disease occurred at Haverford West in 1849-50, so severe indeed that one practitioner, Mr. J. D. Brown, had no less than 200 cases in his own practice, of which 40 proved fatal. (See 'Med. Times and Gazette,' Dec. 28th, 1850.)

the disease? In the year 1826, M. Bretonneau announced that he had operated on three cases, and that in one of them life was saved by the operation.[1] In 1835, he had operated on 17 children, and had saved the lives of 5.[2] As long ago as 1840, M. Trousseau reported having operated in 80 cases, which resulted in 60 deaths and 20 recoveries,[3] and in a lecture recently delivered at the Hôtel Dieu,[4] he gives the result of his operations for croup during the four years ending 1854. They were 24 in number; in 10 cases the children died, in 14 they recovered. M. Letexerant reports the details of 47 cases in which the operation was practised during the years 1850-51. Of these, 30 died and 17 recovered. And I wish to draw attention to the results of M. Trousseau's later experience, as stated above, and to the following numbers, reported from the Hôpital des Enfans Malades, at Paris, as evidence of the increasing success which attends the operation as the practice becomes more thoroughly understood, and due precautions are more carefully attended to. M. Becquerel, writing before 1842, and giving the results of tracheotomy in croup, as practised at the Hôpital des Enfans, reports: "depuis dix ans, on n'a sauvé qu'un seul cas de croup sur plus de cent opérations qui ont été practiqués."[5] Whereas in 1850, the official reports of the same hospital give 20 operations and 6 cures; in 1851, 31 operations, and 12 cures; in 1852, 59 operations and 11 cures; in 1853, 61 operations and 7 cures; in 1854, 44 operations and 11 cures; or, on the whole, 215 operations and 47 cures, or nearly one quarter of the whole. And when it is remembered that at the Hôpital des Enfans Malades, the children, as M. Trousseau observes, are "of the poorest class, who have been neglected

[1] 'Traité des inflammations spéciales du tissu muqueux et en particulier de Diphthérite.'

[2] See a Thesis 'Du croup et son traitement,' par Jules Louis Chenantais, p. 52. Paris, 1844.

[3] See 'Cyclopedia of Practical Surgery;' article bronchotomy, by T. Spencer Wells.

[4] See 'Medical Times and Gazette,' January 5th, 1851.

[5] Thesis 'Du Croup et son traitement,' par Jules Louis Chenantais, p. 53.

or badly treated prior to their admission into the hospital," and "are surrounded by the contagion of scarlet fever, measles, smallpox, and hooping-cough, which often cause the most fearful complications," it is only surprising that the operation has been attended with so much success; and we may well believe M. Trousseau's statement, that "half the operations performed out of the hospital are successful." But, taking the numbers as they stand, and excluding the 100 cases referred to by M. Becquerel, in which, during the infancy of the operation, tracheotomy was performed at the Hôpital des Enfans, and in which it must be presumed some accidental and avoidable cause led to the uniformly fatal result, we find a grand total of 383 operations and 103 recoveries, giving a proportion of one recovery to every 3·7 operations; or, excluding the numbers reported since 1850, from the Hôpital des Enfans, where, for the reasons already stated, the chances against the success of the operation are greatly above the average, we obtain a total of 168 operations and 56 recoveries, or a proportion of one recovery to every three operations. And when it is considered that the operation is not had recourse to until the second stage of the disease has set in, or in other words, until the disorder has reached a point from which, before the introduction of tracheotomy, very few recoveries took place, the conclusion seems inevitable, that in croup cases generally, including the diphtheritic form of the disease so prevalent in France, the operation is eminently successful, and is productive of an enormous saving of life.

What then is the difference between the diphtheretic form of the disease and idiopathic inflammatory croup, which should lead us to regard the operation so successful in the one as totally inapplicable to the other? There certainly is nothing in the nature of the accompanying fever which should lead us to anticipate a more favorable result in diphtheritis; for in idiopathic inflammatory croup the vital powers are far less rapidly depressed than in the diphtheritic form of the disease. Neither is there any in the condition of the throat externally, for that again is greatly in favour

of success in idiopathic croup. Is there any then in the extent of the disease or the condition of the œsophagus? Many authorities answer in the affirmative. "In France," says Dr. West, "croupal symptoms are induced in the majority of cases by the extension to the larynx of false membrane, originally deposited on the fauces and soft palate, while the windpipe itself is comparatively seldom in a state of active inflammation often unaffected; and the bronchitis and pneumonia, which in this country so often and so seriously complicate the disease, are of less common occurrence."[1] Now I am satisfied that this reputed absence of tracheal pulmonary affection in France is not in accordance with actual facts, and has been too hastily assumed by English writers, with the view of explaining the success which has attended tracheotomy in croup, in the hands of French surgeons. Messrs. Bretonneau, Roger Collard, Guersant, and all French authorities, speak of the frequency of tracheal and pulmonary complications. M. Matice reports:[2] "les pneumonies lobulaires sont très communes; dans l'epidemie de 1840 à 1841, c'était la complication prédominante;" and again, "la bronchite se rencontre aussi très souvent;" and certainly during the months I was working in the wards of the French hospitals at Paris, almost all the cases of croup I saw there were accompanied by symptoms of pulmonary and tracheal affection. Indeed I am at a loss to discover the source of the erroneous doctrine so commonly promulgated in England as to the comparative rarity in France of croupal pulmonary affections. Possibly it may have arisen from the confusion created by

[1] West 'On Diseases of Children,' 3d edit., p. 304. It is right, however, to add that, at p. 307, after reviewing the various arguments which have been urged against the operation, Dr. West speaks of "the circumstances which make him hesitate in expressing a decided opinion against tracheotomy, and that prevent him from joining at present in that unqualified condemnation of the operation in cases of croup which has been pronounced by the greater number and the most weighty of English authorities."

[2] 'Du croup, de sa nature, de son traitement,' par C. F. Matice. Paris, 1846.

many French writers in not drawing a distinction between diphtheritis and idiopathic croup. For diphtheritis is not primarily an affection of the air-passages, and consequently if all cases of diphtheritis, whether accompanied or unaccompanied by croupal symptoms, are to be regarded as instances of true croup, there cannot be a doubt that pulmonary complications are far less common in croup, as it occurs in France, than in the idiopathic inflammatory croup of England. But the cases of diphtheritis in which the air-passages escape are not attended with croupal symptoms, and therefore are not included in the numbers from which the French statistics of tracheotomy are deduced, and all the reliable evidence we possess goes to prove that when the air-passages *do* suffer in diphtheritis, the mischief is of the same character, and extends quite as far as it does in ordinary inflammatory croup. The results of careful pathological research are quite conclusive on this point. With the view of determining the existence, seat, and extent of false membranes in the air-passages, M. Chenantais has recorded the post-mortem appearances observed in 140 cases of croup.[1] They occurred in France, and therefore the majority of them were probably examples of the diphtheritic form of the disease.

In 25 the false membrane did not extend beyond the larynx and the middle of the trachea.

In 50 the affection reached to the lower part of the trachea.

In 22 the larger bronchi were affected.

In 19 the false membrane reached the smaller bronchial ramifications.

In 7 the seat of the exudation was not precisely limited.

In 7 no false membrane was found in the air-passages.

Another series of 171 cases has been collected and reported by M. Hussenot.[2]

In 30 of these instances the larynx and trachea were implicated, but no mention is made of the state of the bronchi.

[1] 'Du Croup,' par Jules Louis Chenantais. Paris, 1844.

[2] Thèses de la Faculté de Paris, No. 63, p. 73, 1833.

In 78 false membranes occupied the trachea, but did not extend below.

In 26 the larger bronchi were affected.

In 16 the smaller bronchi were implicated.

In 21 no false membranes were found.

Now from these statistics it is obvious that, when diphtheritis attacks the air-passages, the extent of mischief is nearly, if not quite, as great as that which is met with in idiopathic inflammatory croup, so that in this point of view the former disease, when accompanied by croupy symptoms, does not, as compared with the latter form of croup, present any greater prospect of success for the operation of tracheotomy than it does in the character of its accompanying fever, or the condition of the throat externally.[1]

Thus, then, it must be admitted that, in spite of the theoretical objections to the operation, the practical success which has attended its performance is sufficiently striking; for in France, where, before the introduction of tracheotomy, croup (by that term implying both forms of the disorder) proved fatal to nearly two thirds of those attacked,[2] and almost invariably destroyed life when it had reached its second stage, patients at the present day are not only saved as, heretofore, when the attack is mild and manageable, or when they come early under treatment, but in about one third of the more formidable or neglected cases are actually snatched from the jaws of death by the operation of opening the trachea.

What then is the practice in these cases in England?

[1] If the above statistics and the results of Dr. West's experience in London are taken as the basis for an opinion as to the relative severity of the affection of the air-passages in France and England, it would appear that as far as croupal exudation is concerned the disease is more formidable in the former country, for Dr. West says ('On Diseases of Childhood,' 3d edit. p. 307) "In the chief of the cases that have come under my notice among the poor in London, the deposit of false membrane was very limited and the larynx was the chief, sometimes the exclusive seat of the disease."

[2] See 'Rapport de Royer-Collard, p. 165.

It may be stated generally that if medicinal agents fail to relieve our patients who are attacked with croup, we rarely attempt to save their lives by operative interference. So notorious has this become, that in a lecture recently delivered by M. Trousseau, at the Hôtel Dieu, he asserted that, "throughout the whole extent of Great Britain, tracheotomy is not so much practised as it is in Paris alone." And such is indeed the fact. Our chief English authorities have, almost without exception, opposed the operation, principally on theoretical grounds, and those surgeons who have been most zealous in attempting to save life by its agency have been daunted by their ill success in the few cases in which they have performed it. Without wasting time by an unnecessary quotation of authorities, I may be permitted to refer briefly to a few of those whose opinions are most entitled to respect. Dr. Cheyne was strongly opposed to the operation. Dr. Mason Good states that "there is but little hope of any benefit from such an operation." Mr. Porter speaks of the satisfaction he feels at having assisted in checking the growing tendency to the performance of an operation "which cannot effect a cure, and which, therefore, there can be no reasonable motive for undertaking." Dr. Watson "would be inclined to look upon it as absolutely hopeless, but for two instances recorded in the 'Medico-Chirurgical Transactions;'" and Dr. West reports that, "in England, the result of almost every instance of the performance of tracheotomy in croup has been so unfavorable that the operation is scarcely looked upon as a justifiable proceeding." No wonder that in the face of such authorities the operation seldom has been had recourse to! It must be remembered, however, that these gentlemen do not found their opinion, as to its inefficacy, on its observed results in any large number of cases, but rather on theoretical objections arising out of the pathological effects of the disease, and of the ill success which has attended the operation in the comparatively few cases in which it had been performed in England prior to the publication of their respective works. And in estimating the value of such

opinions it must be remembered that out of the first 100 cases operated on at the Hôpital des Enfans, at Paris, before the conditions essential to success were understood, no less than 99 proved fatal, whilst by taking the precautions which an extended experience has pointed out, nearly a fourth of the cases are now saved. But putting conjecture and theory aside, enough has been done already in England to prove that tracheotomy, performed even in the very last stage of the disease, is followed not unfrequently by favorable results. In the third volume of our 'Transactions,' Dr. Farre relates the case of a boy successfully operated on by Mr. Andrée. The child was on the very point of suffocation, when his throat was opened, and he recovered perfectly. Mr. Chevalier relates a similar case in the sixth volume of our 'Transactions;' Mr. Craig, of Ayr, in Scotland, has recorded another in the person of a child aged seven.[1] Dr. Prior, of Bedford, has reported another, the patient being a boy five years of age;[2] one case was successful about four years ago in University College Hospital;[3] Mr. Jones, of Jersey, has put another on record, in which the sufferer was a boy five years of age, a patient at the Jersey Hospital;[4] and I have myself witnessed two successful cases in St. George's Hospital.[5] And these, be it observed, were, without exception, instances in which the operation was deferred until the last stage of the disease, when suffocation was imminent, and when it was morally certain that life would soon have become extinct if the breathing had not been relieved by tracheotomy. And if the details of the fatal cases are examined, there will be found even in them much ground for encouragement; for it will be seen that in a very small proportion of them were the symptoms of a nature to preclude the possibility of recovery, and further experience may enable us to distin-

[1] See 'Medical Times and Gazette,' May 21st, 1853.
[2] 'Association Medical Journal,' Nov. 16th, 1855.
[3] 'Medical Times and Gazette,' Dec. 9th, 1854.
[4] 'Association Medical Journal,' Oct. 4th, 1856.
[5] A third successful case is reported in the postscript to this paper.

guish such cases during life, and so to avoid the performance of the operation. In the sixth volume of our 'Transactions,' Mr. Chevalier relates a case in which relief was obtained for a few hours. Mr. Porter[1] details one in which a girl, aged five, went on favorably until the fourth day after the operation; and another in which a girl, aged three and a half, was temporarily relieved, but was choked in the course of twelve hours, in consequence of her inability to expectorate through the wound, "any mucus which was thrown into the wound being sucked back again by the next inspiration." Dr. John Wilson[2] has recorded the case of a boy who was operated on whilst in a moribund state, was relieved, fell asleep, and continued to breathe tranquilly until he was suffocated ten hours afterwards by accidental obstruction of the canula. Mr. Erichsen[3] has reported another case in which a child aged five years who had been subject to fits, and had also suffered hemiplegia, was going on satisfactorily in every respect, when on the day succeeding the operation she was seized with a fit and died. Mr. Henry Smith has reported three cases:[4] the first was that of a boy, aged two, who was operated on at 11·30 a.m., whilst in a moribund state, and ceased to breathe before the completion of the operation. Artificial respiration restored him to life, and for eight hours everything went on admirably, the child "breathing with ease." At 8 p.m., however, there was a sudden accession of dyspnœa, probably from obstruction of the tube, and almost immediately the child ceased to exist. The second case was that of a girl, aged four, who underwent the operation at 2 p.m. on the 12th of August; ejected a considerable quantity of mucus and false membrane through the artificial opening, was greatly relieved, passed a fair night, and the next morning was "breathing with tranquillity." Stupor subsequently occurred, and she died at 2 a.m. on the 14th,

[1] 'On the Larynx and Trachea,' pp. 74-8.
[2] 'Med. Chir. Trans.,' vol. 25, p. 71.
[3] 'Lancet,' May 4th, 1850.
[4] 'Medical Times and Gazette,' March 5th, 1853.

thirty-six hours after the operation. The third was that of a child, eleven months old, who was temporarily relieved by the operation; but expired six hours afterwards, evidently prostrated by the effects of the disease, or else asphyxiated by reason of the small quantity of air admitted through the opening, for there was no obstruction in the trachea or bronchi. Two more cases have been recorded by Mr. Smith, in which the croupal symptoms arose subsequently to scarlatina.[1] In the first of these the child was four years old, the throat was in a sloughy condition, the child was on the brink of suffocation, and the pulse was almost imperceptible. The operation afforded immediate relief, and the child lived seven days afterwards, when extensive aphthous ulceration of the mouth, and an attack of capillary bronchitis set in suddenly and carried her off. The second case occurred in the person of a girl five years of age. She was operated on at midnight, and experienced immediate relief: the air was heard entering the chest "freely and softly," and "the chest expanded well;" the child took nourishment at once, and fell into a sound sleep. Early in the morning she was nearly asphyxiated by obstruction of the canula, but was relieved by its withdrawal. Throughout the day she continued comfortable; but towards evening she became very depressed, and died at 11 p.m. Another instance is related by Dr. West of a boy, aged twenty-one months, who was operated on by Mr. Arnott in the Middlesex Hospital, and was thus kept alive for forty hours; and of the three fatal cases which I have witnessed, and which are recorded in this communication, one only presented symptoms which precluded a reasonable hope of recovery. The cases above referred to include all the fatal cases of which I can find records in the English journals, and in almost all of them immense relief was afforded by the operation; in several of them no false membrane was found below the seat of the artificial opening, and death in some of them appears to have resulted from accidental and possibly

[1] 'Medical Times and Gazette,' Jan. 26th, 1856.

avoidable causes. But even supposing that death was the unavoidable result of all these cases and of many others which may not have been recorded, still if life can be saved, as I have shown it may be, in a certain number of instances, by operatic interference, I apprehend that a medical practitioner, to whom is intrusted the preservation of his patient, would not be justified, except under some peculiar circumstances, in withholding the chance afforded by the operation.

But here comes a question as to the stage of the disease at which the operation should be undertaken. Ought we, following M. Trousseau's example, to open the trachea as soon as the second stage of the disease has commenced? or ought we not, rather, to wait till other remedies have failed, and suffocation appears to be the inevitable result of the non-performance of the operation? It is asserted by those who advocate an early performance of tracheotomy, that much engorgement and inflammatory mischief in the lungs is prevented by admitting a free supply of air at an early stage of the disease; and that the patient, being stronger than at a later period, is better able to undergo the fatigue of the operation, and to cough up the false membrane, or the thick tenacious mucous by which the bronchi are obstructed and the breathing is oppressed. But, however plausible these suggestions may be, they must not be allowed to influence our practice, unless it can be shown, —1st, that the pulmonary engorgement so commonly presumed to exist during life is not attributable to the irritative influence of the disease; 2dly, that if referable to obstructed breathing, it occurs as soon as the second stage of the disease has commenced; and 3dly, that when suffocation is approaching, the patient is unable to bear the operation, or has not sufficient strength to cough up and get rid of the accumulations in his air-passages. And experience seems to negative these suppositions. Not only is it not uncommon to find pulmonary engorgement in croup unconnected with any material obstruction of the upper air-passages, but in many instances, even when the larynx and

trachea have been plugged with false membrane, the amount of pulmonary engorgement observed after death has not been greater than that which occurs in the course of three minutes in cases of ordinary asphyxia. Further, the operation is usually well borne, and expectoration takes place freely and easily as soon as the trachea is opened. In four out of the five cases recorded in this communication, in which the operation was not had recourse to until collapse had set in, and death was, so to speak, commencing, none of these theoretical difficulties were observed, nor were they, in more than one or two of the cases, whether successful or unsuccessful, of which I can find records in English literature. On the contrary, it is almost invariably remarked that in a space of time varying from a few minutes to half an hour or an hour after the operation, the patient coughed up some mucus or false membrane through the artificial opening, appeared much relieved by so doing, and fell asleep, breathing easily—facts quite inconsistent with the existence of any great degree of persistent pulmonary engorgement. It is no answer to such convincing evidence to adduce the results of post-mortem investigations. Doubtless in certain instances there are found after death abundant traces of acute bronchitis or true pneumonic consolidation. But in the majority of cases there is nothing more than excessive pulmonary congestion with capillary injection of the bronchial mucous membrane, and an effusion of frothy mucus into the bronchi—appearances presented in cases of ordinary asphyxia even when death has taken place in a few minutes, and has not been preceded by affection of the lungs. Admitting, therefore, that these appearances are found after death, their presence might indicate nothing more than death from asphyxia, and would not warrant any inference as to the protracted existence of pulmonary engorgement, and the consequent necessity for the early performance of tracheotomy. Even in France it appears that the results of more extended practical experience are beginning to dissipate the fallacious opinions

generally entertained as to the necessity for an early performance of tracheotomy. For MM. Bretonneau, Trousseau, others, who were formerly most forward in recommending its adoption at an early stage of the complaint, have lately had recourse to it only towards the latter stage, and when other remedies have failed.

Various considerations of a different kind tend equally to recommend this line of practice. It is well known, for instance, that in the earlier stages of the disorder, a certain proportion of cases will recover without tracheotomy; it is probable that a certain number perish from the direct and indirect consequences of the operation quite irrespective of the existence of the disease; and it is certain that the operation, however skilfully performed, must in many ways seriously complicate the case: whereas if its performance be deferred until other remedies have failed, and asphyxia is rapidly approaching, we do not endanger life by the operation, and therefore incur very little responsibility thereby. As, then, the theoretical objections to the late performance of the operation are found to have no foundation in fact, I submit that we ought not to open the trachea until other remedies have failed. The statistics of an early performance of the operation may possibly be found hereafter to furnish more favorable returns than those derived from its performance at a later period; but judging from what I have seen, and from what I can learn from the experience of others, I believe that the difference observed would not be greater than is explicable by there being included amongst the former a certain number of cases which would have recovered without tracheotomy. As long as it appears possible to save life without operative interference, so long, I maintain, we ought to withhold the knife; but directly it becomes obvious that our remedies have failed, and that life will be sacrificed if the trachea be not opened, that moment we ought to urge upon the parents the immediate performance of tracheotomy. Each minute that is lost afterwards is so much against the patient's recovery; for with approaching suffocation, the strength fails rapidly, and passive

congestion of the lungs takes place. It is impossible to lay down precise rules as to the moment at which the operation should be undertaken; that of course must be determined in each case by the discretion and judgment of the practitioner in attendance; but it is obvious that no time should be lost in having recourse to its assistance when the third stage of the disease has set in; or in other words, when the respiration is becoming feeble, the skin cold and clammy, the eyes fixed, the voice faint and whispering, the pulse rapid, feeble, or intermittent.

But are there no signs whereby we may prognosticate the issue of the operation in any given case, or which, as indicating the impossibility of recovery, should cause us to hesitate in recommending its adoption? Assuredly this is a difficult question to answer. If it could be shown that the lungs had already passed into a state of pneumonic consolidation, and that the bronchi were obstructed by masses of albuminous exudation, it would be in strict accordance with experience in such cases to anticipate a fatal result; and this being so, it would be folly to attempt an operation which must prove unproductive of ultimate benefit, and which, besides distressing the parents, must tend by its failure to bring surgery into disrepute. But unfortunately it has been established beyond dispute, that neither by a physical examination of the chest, nor by the most careful observation of the general symptoms, can we arrive at a certain conclusion as to the condition of the lungs, or the issue of the operation. Not only is it impossible to discover the point to which false membranes have extended, but even to diagnose with certainty the very existence of false membranes.[1] The extreme restlessness of the patient in the later stages of the disease, renders percussion difficult, and useless as a means of accurate diagnosis; and the stridulous noise attendant upon croupal respiration usually deprives us of the information which otherwise might be obtainable by auscultation. In certain cases the

[1] For an example in illustration of this point see West 'On Diseases of Children,' 3d edit., p. 295.

presence of vesicular breathing may be distinguished, and may lead to the inference that inflammation has not as yet extended to the lungs: and in others the existence of bubbling sounds diffused generally over the chest may serve to indicate pulmonary congestion, and the presence of fluid secretion in the air-tubes; but stethoscopists will understand how difficult, or rather impossible, it must be when the larynx is in a state of tumefaction or ulceration, or is plugged with concrete albuminous exudation, to draw any trustworthy conclusion as to the existence of bronchial obstruction merely from the weakness or absence of respiratory murmur over any portion of the lungs. Moreover, it appears from the results of dissection that the mortality after tracheotomy in croup does not bear a constant relation to the extent of false membrane, or of pulmonary engorgement. Not only have many cases proved fatal in which there has been no tracheal or bronchial obstruction, but instances have been put on record in which recovery has taken place in spite of albuminous concretions extending even to the minute bronchial ramifications.[1] Therefore, if the physical and social condition of the patient, and the existence or non-existence of any exanthematous or other disorder be excluded from the calculation, there appear to be no sufficient grounds on which to hesitate in recommending the operation. But the conditions just alluded to, and especially the social position of the patient, as implying the ability or inability to obtain proper assistance, and the unwearied and skilled attention which is absolutely essential to the success of the operation, must be allowed full weight in determining our line of practice. If the patient has been out of health prior to his attack of croup, if his illness has been preceded by pneumonia or severe bronchitis, if he is suffering from any exanthematous or other disorder; and further, if he is in such a position of life that his parents are unable to secure for him proper skilful attendance day and night, the operation ought not

[1] See a case recorded by Dr. Barker, 'Med. Chir. Trans.' vol. xxi.

to be recommended, however promising it might otherwise appear. For under such conditions it must almost certainly prove fatal, and although, if the trachea be not opened until the last stage of the disease, we should not risk life by its performance, the parents might justly censure us for recommending it, and the operation might fall into unmerited disrepute.

An argument against the general adoption of tracheotomy has been founded on the assertion that in many instances death results from the formation of fibrinous concretions in the heart, and happens quite independently of closure of the air-passages; and it has been stated that this condition may be recognised during life by the coldness and pallor of the body, slight blueness of the lips, distension of the jugular veins, irregularity of the pulse, intense anxiety, gasping respiration, and constant movement.[1] But I am satisfied this assertion is founded on a wrong interpretation of the phenomena observed, which are attributable to the arrest of the blood in the pulmonary capillaries consequent on the interference with the process of respiration. The symptoms described are precisely those which accompanied both the successful cases recorded in this communication, and more than one of the other cases referred to, and they closely resemble those which occur in many cases of asphyxia. Why, in certain cases of croup, just as of asphyxia, the body should be pale, and in others of a blue or leaden colour, has not as yet been determined; but possibly the difference may be attributable to the variation in the length of time during which life is prolonged after the pulmonary circulation is nearly arrested. If asphyxia is very rapidly induced and life becomes extinct whilst as yet dark-coloured, non-oxigenated blood is being sent to the system from the left side of the heart, the superficial capillaries are congested, and the body is therefore blue or livid, whereas if it take place slowly, very little blood will have

[1] 'Medical Times and Gazette,' March 8th, 1856, "On the Diagnosis of Fibrinous Concretions in the Heart in certain cases of Inflammatory Croup," by B. W. Richardson, M.D.

been sent from the left ventricle for some time prior to its occurrence, the superficial capillaries will have emptied themselves, and the body will be found pale. Certain it is that in croup, just as in asphyxia, pallor is not the primary effect of the negation of air, but after a time succeeds to blueness and lividity. And inasmuch as extensive inflammation of the lungs would of itself throw a mechanical obstacle in the way of free pulmonary circulation, and would tend to hasten the occurrence of asphyxia, the existence of the symptoms alluded to by Dr. Richardson must be regarded as indicating the propriety of tracheotomy, rather than as contraindicating the practice; the probability being, if such symptoms are present, that asphyxia has supervened slowly, and therefore that the parenchyma of the lungs is not inflamed.

There are certain points in the treatment to be adopted subsequently to the operation to which I wish to direct attention. So little importance seems generally to be attached to the after-treatment, that in several of the recorded cases it is not even alluded to; but in the three cases of idiopathic inflammatory croup reported by Mr. Henry Smith,[1] and in most of the other fatal cases on record, wine and brandy formed the chief if not the sole medicaments. On the other hand, in the successful cases recorded in this communication, in Mr. Jones's case at Jersey, and in other cases having a similar result, calomel, antimony, and the remedies which are usually considered useful before the operation, were steadily persevered in afterwards. And if it be remembered that the operation does not arrest the disease, but merely admits air, obviates the ill effects of spasm, facilitates respiration, and so affords time for medicinal agents to exert their curative influence, it is difficult to conceive on what principle the use of such agents should be discontinued. In the fatal cases, almost without exception, the breathing was immensely relieved by the operation, the symptoms of approaching asphyxia passed off, the

[1] 'Medical Times and Gazette,' March 5th, 1853.

countenance reassumed a natural appearance, and the patient fell asleep, breathing calmly. This period of tranquillity lasted for periods varying from a few hours in some instances, to three, four, and even seven days in others, and then in many of them the difficulty of breathing again began to manifest itself, and gave rise to death in the course of a few hours. In most of such cases dissection showed the larynx, trachea, and bronchi, one or all, in a greater or less degree, the seat of active inflammation and of concrete albuminous exudation; and the conclusion has been jumped at, that the operation failed in consequence of the wide-spread mischief in the air-passages which existed at the time of its performance. But is such a conclusion consistent with the observed phenomena? Is it likely, is it possible, that an obstruction of the air-passages, such as that which produced death, and which was made manifest by the scalpel afterwards, could have existed during the period of tranquil breathing and calm repose which followed the operation? or, is it not more probable, that subsequently to the operation the previously existing mischief had extended, or else that the inflammation had recommenced. In the museum of the Middlesex Hospital is an interesting preparation, which proves that an entire cast of the trachea may be formed within a very few hours. The child from whom it was taken, after undergoing tracheotomy, ejected a tubular portion of false membrane through the artificial opening, and fell asleep. In the course of a few hours the dyspnœa returned, and in less than seven hours from the time of the operation the child perished of suffocation, consequent on the pouring out of the fresh albuminous matter exhibited in the preparation. Now it is easy to conceive such a catastrophe occurring, not only under the influence of wine and brandy, but simply from the non-exhibition of those remedies which experience proves to be most efficient in subduing croupal inflammation and arresting its progress. If the inflammatory action has been already subdued, or is rapidly subsiding at the time of the operation, the patient may possibly recover without any further administration of

medicines, provided the smouldering embers of mischief are not rekindled by the injudicious exhibition of stimulants. But if active inflammation still exists, it is vain to hope for ultimate recovery, unless means are taken to check the continuance of the morbid action and the extension of its pathological effects. As well might we expect to arrest the disease without the aid of medicine before tracheotomy has been performed, as to save the patient without its assistance afterwards. Nor does it appear to me that in idiopathic inflammatory croup the administration of stimulants is at all in keeping with the nature of the disease or the necessities of the case. The exhaustion often observed after tracheotomy in these cases, just indeed as before the operation, is the exhaustion of asphyxia, which is to be remedied by the free admission of air, and by the performance, if necessary, of artificial respiration, but not by the administration of internal stimulants. We might as well give brandy to a person half strangled, as to a child half asphyxiated by croupy obstruction of the trachea. In the diphtheritic form of the disease, and in those varieties which follow measles, scarlatina, or other of the exanthemata, in all of which the patient is prone to pass into a typhoid condition resulting from the action of the poison which excited the original disease, it may be necessary to support the system, and not only to give tonics and stimulants before the operation, but to push them even to a greater extent afterwards. These cases, however, are quite distinct from idiopathic inflammatory croup, and require from the first a different treatment. And just as bleeding proves prejudicial to a patient's safety in the former class of cases, so stimulants must do in the latter. If for the moment a little wine may be necessary to counteract the loss of blood resulting from the operation, still to persist in its administration to the exclusion of those remedies which experience has pointed out as most efficient in arresting the disease, is to risk and prejudice our patient's chance of recovery.

It may be well at this point to draw attention to two causes, which, though not referred to in any book to which

I have had access, exert, I believe, a powerful influence in producing a fatal result. I allude to the shock sustained by the nervous system in the long-continued struggle for breath, and also to the imperfect subsequent expansion of the lungs, consequent on collapse of the pulmonary tissue. These, I am satisfied, together constitute the cause of the fatal issue in many of the cases in which the patient begins to sink some hours, or even days, after the operation, without any material increase of dyspnœa, and whilst all the symptoms are progressing favorably. The sinking observed is precisely analogous to that which is sometimes met with about the same period in persons who have been submerged or otherwise partially asphyxiated, and doubtless is attributable to the same agencies. How far it may be possible to ward off the fatal issue in these cases, by the adoption of appropriate treatment, is a question worthy of careful investigation; and it may further admit of inquiry, whether the inhalation of oxygen and the adoption of other means to stimulate the full expansion of the lungs, may not have the effect of warding off the catastrophe. However this may be, the occurrence of such cases, which has been adduced as a reason for not performing tracheotomy, does not, in fact, afford any argument against the operation. The utmost that can be urged is, that in a certain proportion of otherwise favorable cases, the operation will fail in consequence of the supervention of the symptoms referred to; and the possibility of such an untoward event might be urged with equal propriety against any attempt to recover persons apparently drowned, as against tracheotomy for the relief of those who are being asphyxiated by croup.

It is not my province to discuss the mode of performing tracheotomy in these cases, neither is it my intention to do so, but I may be permitted to add a few remarks on one point connected with the operation, which I am satisfied has a material influence on its successful issue. I allude to the size and construction of the canula inserted into the opening in the trachea. If, as is commonly the case, the larynx is only partially obstructed, the tube in common use may

suffice to introduce a due *supplementary* amount of air; but if by any chance the obstruction is complete, or becomes so subsequently to the operation, the patient who has only an ordinary trachea tube to breathe through cannot fail to undergo slow suffocation. Those who witnessed the early attempts at the administration of ether in surgical operations, will not easily forget the frightful asphyxia and convulsions which resulted from the use of a breathing tube of inadequate size; and if any persons doubt whether the symptoms of asphyxia may not have been attributable to the ether, they may soon convince themselves, by closing the nostrils and breathing for a short space of time through a tube of the same calibre. And yet the tracheal tubes in common use are of far smaller size than the breathing tubes alluded to, and like them would inevitably permit the supervention of asphyxia, if the entrance of air into the lungs through the natural channel were altogether prevented. Not only is the external or upper orifice too small, but the tube is so tapered off towards its inferior extremity, with a view to facilitate its introduction into the trachea, that its internal or inferior orifice is not capable of transmitting one half of the quantity of air required for the supply of the system. And as in croup cases the passage by which air naturally passes into the lungs is apt to become completely occluded, for a time at least, sometimes by the occurrence of spasm, sometimes by the presence of a plug of false membrane, it is especially needful to use a full-sized canula, so as to provide against all contingencies.

If I may be permitted to offer a suggestion on this, the more strictly surgical aspect of the subject, I would recommend—

1st. That the trachea tubes be made larger, shorter, and less curved than those in common use, and that in every case a tube be employed of calibre equal to the tube of the trachea.

2ndly. That the *inner* tube, longer than the outer one, and somewhat flattened from side to side, be made of uniform

diameter throughout, and be so constructed at its inferior extremity, that the direction of its internal or inferior orifice shall be at right angles to that of its external orifice.

3dly. That the *outer* canula, instead of being constructed of one piece, as heretofore, be divided vertically and longitudinally into two blades, which shall not together make up a perfect tube, but (especially towards their inferior extremity), shall consist merely of the flattened lateral portions of a tube, the upper and lower portions of which have been cut away.

4thly. That the blades of the outer canula be fastened at their superior or outer extremity by a hinge, so constructed as to admit of their inferior extremities being brought together in a wedge-like form, after the manner of a dilating bivalve vaginal speculum, and of being expanded without a moment's delay, by merely pushing in the inner tube between them.

5thly. That a small screw be placed close to the hinge of the outer canula, so as to fix the blades in their expanded position, and thus to admit of the inner tube being withdrawn for the purpose of cleansing, leaving the outer one expanded.

The peculiarities and advantages of an instrument so constructed over those in common use, are—

1st. *The uniformity in the diameter of the inner tube.*—This would not only insure uniformity in the force of the expiratory blast throughout the whole length of the tube, and thus render an accumulation of mucus, and consequent obstruction, far less probable, but it would enable us to judge, by the size of the outer orifice, whether the calibre of the tube is such as to admit a sufficient supply of air—a fact which it is impossible thus to ascertain when ordinary trachea tubes are used, inasmuch as they are tapered off to a greater or less extent, according to the fancy of the surgeon or the instrument maker.

2dly. *The direction of the internal orifice of the tube.*—

This, independently of the length or precise curvature of the tube, would obviate all possibility of obstruction arising from the internal orifice of the tube being pushed against the posterior wall of the trachea, an accident which may readily occur with many of the trachea tubes in common use.

3dly. *The construction of the outer tube.*—This would not only facilitate the introduction of the tube through the edges of the incision, and thus save time in the performance of the operation, but it would render serious obstruction well nigh impossible, inasmuch as should the inner tube become obstructed, its withdrawal would at once open a free channel for the admission of air through the expanded blades of the outer tube. Further, it would enable us to dispense, if necessary, with the use of the inner tube, a circumstance of great importance in children in whom the trachea is small, and in whom, consequently, the thickness of a double canula forms a serious obstruction to the admission of a due supply of air. Indeed, whether in children or adults, the outer tube would alone suffice for all purposes.

These circumstances, I apprehend, are all deserving of careful consideration, and appear to me to justify the opinion, that, with an instrument such as that above described, an increased measure of success would attend the operation. At all events, it is certain that in cases of tracheotomy in croup, asphyxia supervenes with great rapidity; that the suffocative paroxysms consequent on an obstruction in the canula induce frightful distress and dangerous pulmonary congestion; and that, if we fail to anticipate and guard against such difficulties, we neither do justice to our patient, nor do we give the operation a fair chance of success.

POSTSCRIPT, *September 7th*, 1857.

Since the foregoing paper was read before the Society two other patients suffering from croup have undergone

tracheotomy in the wards of St. George's Hospital. The first died, notwithstanding the operation; the last recovered perfectly. As every instance of recovery possesses special interest whilst the question as to the propriety of the operation remains *sub-judice*, I have ventured to subjoin the particulars of the two cases, together with a few remarks thereupon.

The first patient was a girl, named Amy Stewart, aged five, who was admitted, under the care of Dr. Pitman, on the 11th of March, 1857. She had been subject to colds and coughs since birth, and had been attacked with wheezing, and harsh, croupy breathing, on the 9th instant. Nothing, however, was done for her relief until 8·30 on the 11th instant, when, as the symptoms were very aggravated, a medical man was sent for, who advised her immediate removal to the hospital. She arrived at St. George's at 10·30 p.m., when tartar emetic and other remedies were given; but the dyspnœa increased, the complexion became exceedingly dusky and dark-coloured, the extremities cold, the pulse almost imperceptible, and at 3 a.m. on the morning of the 12th instant, it was found necessary to have recourse to tracheotomy. The operation was performed by Mr. Hooper, the house surgeon, and gave immediate but not complete relief to the breathing. The dyspnœa decreased, the lividity passed off, and warmth returned to the extremities. Subsequently, however, the difficulty of breathing recurred, and at 1 p.m. she died.

The post-mortem examination showed the larynx and the trachea, almost as low as its bifurcation, coated by soft, yellow fibrin, a thin film of which partially covered the inner orifice of the opening made during life; the bronchi were congested, but free from false membranes; the lungs collapsed, but not otherwise diseased.

The only remarks I would make on this case are, 1st, that, inasmuch as all treatment had been neglected prior to the child's admission into the hospital, success could hardly

have been expected from the operation; and 2dly, that the condition of the parts discovered after death renders it doubtful whether the fatal issue may not have been attributable in some measure to obstruction of the artificial opening.

The second case was that of Frederick Smith, aged six, who was admitted into Holland ward at 9 a.m. on the 26th of July, 1857, under the care of Dr. Barclay. He had been attacked with cough and huskiness of the voice on the 17th instant, which at 1 p.m. on the 18th instant had so much increased, and was accompanied by so much dyspnœa, that recourse was had to medical advice. Medicine was then administered, and a blister was applied to the chest, but nevertheless the symptoms remained unrelieved, and at 2 p.m. on the 26th instant the breathing became markedly stridulous. From this time the severity of the symptoms rapidly increased, and at 9 p.m. on that day he was brought to St. George's Hospital.

On admission he was almost pulseless, the dyspnœa was excessive, the extremities cold, the lips livid, and the throat swollen and very puffy, with all the superficial vessels gorged. Tracheotomy was therefore determined on, and Mr. Tatum operated without loss of time. He first made a small incision below the isthmus of the thyroid, but this was followed by profuse hæmorrhage from the neighbouring plexus of veins, and a considerable quantity of blood flowed into the trachea, causing suffocative choking. Had the jugular been opened the hæmorrhage could hardly have been more profuse. Mr. Tatum, therefore, enlarged the opening immediately, passed the finger into the wound, introduced a tube, and made pressure on the veins. By this time the child was quite pallid, the respiration had ceased, and no pulse could be felt at the wrist. Indeed the child was thought to be dead, but artificial respiration was at once resorted to, and as a few convulsive inspirations soon took place it was kept up for full two hours. During this period the respiration was slowly re-established; a quantity of blood mixed

with false membrane was ejected through the opening, and the child fell asleep. So feebly, however, was the breathing carried on, that for two hours, if the expiratory efforts were not assisted by pressure of the ribs the child ceased to respire, and instantly became pulseless. It was, therefore, found necessary to administer wine.

During the night the breathing continued tranquil, interrupted only by occasional paroxysms of cough; but early on the 27th dyspnœa recurred, accompanied by great congestion of the face and neck. The tube was, therefore, removed, and on its withdrawal nearly a table-spoonful of muco-purulent matter poured from the wound. Immense relief to the breathing resulted; the tube was again introduced, and throughout the day the child continued comfortable. The following remedies were administered:

Hydrargyri Chloridi, gr. j nocte, maneque.
Haustûs Salini, ʒij, c. Vini Ipecacuanhæ, ♏x; 4tâ quâque horâ.
Beef Tea.

He slept well throughout the night, disturbed only by occasional fits of coughing, which were usually followed by the ejection of muco-purulent matter mixed with lymph; and next day (the 28th) his countenance was quite tranquil; the skin though hot was moist; the tongue coated; the pulse 108. His bowels had acted twice. The remedies were continued as before.

Three times during the day the tube was removed and cleaned, and each time was reintroduced without much pain or difficulty. At 8 p.m. excessive dyspnœa suddenly ensued in consequence of a large plug of false membrane blocking up the tube, but this was immediately seized and drawn out of the tube, and the breathing again became tranquil. He passed another quiet night, and on the 30th was evidently better in every respect, and frequently ejected through the tube a quantity of thick muco-purulent matter mixed with shreds of lymph. Towards the afternoon it was observed that a portion of all fluids taken by the mouth

returned through the tube, so that swallowing was accompanied by considerable difficulty, and as this complication became still more troublesome on the following day (the 31st) the tube was withdrawn at 3 p.m., and was not reintroduced. In every other respect he was so much better that the draught was repeated every six hours only, and the calomel only once a day. Strong gravy was also given. From this time he made rapid progress. No food came through the wound after the 1st of August, and on the 3d the calomel, salines, and ipecacuanha were omitted, and he had some meat for his dinner. On the 14th the Ferri Ammonio Citras was ordered. The wound healed kindly, and he left the hospital in perfect health on the 19th of August.

I would only remark on this case, that it affords an admirable instance of the value of tracheotomy in cases of croup, and of the absence of any reasonable ground for despair even when the patient is "*in extremis.*" It also confirms the opinion already expressed, that those who have undergone judicious treatment prior to the operation, are more likely to recover than those who have been neglected; and that although wine may be needed in some instances immediately after the operation, to counteract the ill effects of excessive loss of blood, yet that calomel and other remedies which prove useful before the performance of the operation are equally essential afterwards. Further, it illustrates the value of the trachea tube described in the body of this paper. Twice, three times, or four times daily, the trachea tube had to be removed for the purpose of cleansing, and spite of these precautions and the excessive and constant watchful care which was exercised throughout the case, the boy on two occasions nearly lost his life in consequence of obstruction of the tube. Had an instrument been employed, such as that described in this paper, obstruction to the breathing could not thus have taken place.

SOME OBSERVATIONS

ON THE

ANATOMY AND PATHOLOGY OF THE ADULT PROSTATE,

FOUNDED UPON FIFTY PREPARATIONS OF THE ORGAN, DISSECTED BY THE AUTHOR, AND ACCOMPANYING THE PAPER.

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The observations recorded here are based upon upwards of sixty dissections of the prostate, made by myself during the last two years; but as it was not until after experience afforded by the first ten, that I arrived at a uniform plan of examination, the facts presented will be those derived from the fifty preparations of the organ which accompany this paper. These are exhibited, partly as a voucher for the labour performed, and partly for the purpose of illustrating some points referred to; but, as far as external form and size are concerned, they are now valueless, most of them having been cut through in numerous places by a Valentin's knife, while others have been altered by boiling and otherwise applying chemical reagents.

The method of examination has been, in all cases, as follows: The organ has been cleanly dissected out from the adjacent parts, removing the vessels lying upon its surface, a firm, well-defined fibrous capsule. At the neck of the bladder the muscular and other fibrous structures which surround the vesical orifice of the urethra have been pared away pretty closely, but some very small portions of these have perhaps been left, which may be regarded by some as not, strictly speaking, altogether prostatic tissue. Absolute definition here I believe to be almost, if not quite, impossible. I have been careful, however, to be so exact, that any small portions so remaining will not invalidate the conclusions drawn. The anterior limit, although not absolutely defined, is yet very nearly so; no difficulty, therefore, arises here.

The dissection being quite completed, the organ has been measured and weighed. Three measurements have been taken, in inches and decimal parts, viz.:

1. That from a line uniting the posterior extremities of the two lateral lobes, to the apex; the antero-posterior.
2. The extreme transverse.
3. The greatest depth; *i. e.*, from the pubic to the rectal surface of the organ.

The weight is recorded in drachms and grains.

After this the urethra has been laid open, the existence of "concretions" sought in the canal, and afterwards in various parts of the prostatic substance. In most specimens, fine sections have been made with Valentin's knife, and a series of microscopical observations pursued on the natural and unnatural conditions of the organ, and these are illustrated by about 100 such sections as have appeared worth preserving, and which I have accordingly put up in fluid cells, and which also accompany the paper.

It should further be added, that I have taken the greater part of these prostates from the bodies of elderly people as they consecutively appeared in the dead-house of a large metropolitan institution, containing a due proportion

of healthy and diseased lives, and that no kind of selection has been made; the object having been to obtain them from fair average lives, as occurring in that class of the community which is met with in such institutions. The particulars of age, weight, measurement, &c., will be found arranged in a tabular form, accompanying this communication.

The observations will be presented under five heads:

1. On the frequency with which enlargement appears in advanced age.
2. On the size and weight of the healthy adult prostate.
3. On the nature of a part commonly called "the middle" or "third lobe."
4. On the existence of distinct tumours in the prostate.
5. On the existence of minute "concretions," their mode of production, and their relation to calculous formations in the prostate.

1. On the frequency with which enlargement of the prostate occurs in advanced age.

The opinion has long been current that enlargement of the prostate is one of the changes natural to old age. Sir Everard Home so regarded it. Sir Benjamin Brodie, in the last edition of his 'Lectures on the Urinary Organs,' says—

"When the hair becomes gray and scanty, when specks of earthy matter begin to be deposited in the tunics of the arteries, and when a white zone is formed at the margin of the cornea, at this same period the prostate gland usually, I might perhaps say invariably, becomes increased in size." p. 163.

Mr. Busk has called attention to the fact that old age is by no means necessarily accompanied by this enlargement.

The specimens before us, however, present an opportunity of determining, as far as their limited number permits, the proportion of cases in which, after the fiftieth year has been reached, the organ is found to be enlarged.

Forty-three specimens are from individuals of fifty years old and upwards. Of these 43, 2 were unusually small, probably atrophied, and are struck out of this series, leaving 41.

Of the 41, 14 exhibit either enlargement or a tendency thereto, manifested by the presence of tumour more or less developed.

Of the 14, 9 exhibit it in a very slight degree, established only by anatomical examination. In the remaining 5, enlargement was considerable, and gave rise to symptoms during life. Only 1 died of the affection.

The following are the rates per cent. to which these results are equivalent:

Actual enlargement, or the tendency thereto, exists in about 32 per cent. of men above 50.

Enlargement to a notable extent exists in about 12 per cent.

The following facts are worthy of notice:

The average age of the 9 cases in which enlargement was slight was sixty-four years.

The average age of the 5 cases in which enlargement was notable was sixty-nine years, none being younger than sixty-one.

The average age of the persons of fifty years and upwards, not affected by any enlargement, was sixty-four years.

Among the 29 *unaffected,* were individuals of greater age than any among the affected portion; for example, 1 at ninety, one at eighty-five, two at seventy-nine. Among the affected but one reached seventy-nine, and the tendency in that case was slight.

It may then be regarded as established by the facts before the Society, that enlargement of the prostate, so far from being a change natural to old age, is an exceptional condition. And it may be further regarded as highly probable that a slight tendency thereto, almost, if not quite, unrecognisable during life, may occur in about 1 out of 3 individuals after fifty years; and that a marked enlargement may be found in 1 out of 8, rarely, however, before sixty years of age.

2. On the weight and size of the healthy adult prostate.

Weight and size.—From the 50 cases examined, 14 must be deducted as enlarged or as exhibiting some tendency thereto. Three others were unnaturally small. The remaining 33 were healthy adult prostates, and do not vary much in weight or size. The *prevailing* weight and the *average* weight are almost the same, the latter being 4 dr. and 38 gr. This is considerably less than is usually stated in anatomical works, where it is often represented as from 6 to 8 dr.

Of the three unnaturally small prostates, the first was taken from a young man who died of phthisis, greatly emaciated. It weighed 2 dr. 46 gr. The others were, one from a man aged sixty, weighing 2 dr. 57 gr.; the other, aged seventy-three, weighing 2 dr. 58 gr.

Atrophy has been alleged to be an effect of old age, when hypertrophy is not present. These observations do not bear out the accuracy of this remark. The weight of six prostates which in this, the healthy series, belonged to men in the prime of life, average 4 dr., 32 gr., or six grains less than the general average of healthy organs of all ages, a weight sufficiently near, however, to be regarded as identical. This series shows then, 27 prostates from elderly men, that is, at ages from fifty to ninety, *unaffected either by atrophy or hypertrophy.*

Measurements.—The transverse diameter is almost always the greatest, exceeding the antero-posterior by about a fifth or a sixth. These relations vary very much. Sometimes the organ is much compressed from before backwards. Much less commonly is the transverse measurement decreased. The usual measurements given in our anatomical works are corroborated by my inquiries, which may be expressed in average terms as follow:

	inch.	inch.
From base to apex	$1\frac{1}{4}$ to	$1\frac{1}{2}$
Greatest transverse diameter, about . .	$1\frac{3}{4}$	
Greatest thickness, about	$\frac{5}{8}$ to	$\frac{7}{8}$

These are smaller than those given by Dupuytren, who re-

presented, in his work on 'Bilateral Lithotomy,' the prostate as measuring 20 to 24 lines transversely, and 10 to 12 in thickness, and on these estimates his calculations were based.[1]

The interesting and important result as regards lateral lithotomy is the measurement in a direction outwards and downwards from the centre of the urethra (which may be regarded as corresponding in the operation with the bottom of the groove in the staff), to the outer border of the vesical extremity of the organ. This direction may be considered as midway between the horizontal and vertical lines, forming with each, therefore, an angle of 45°, when the patient lies in the position for lithotomy. It may be accurately deduced from the form and measurements given, and has been verified by numerous actual sections of the organ :

	inch.
Average measurement of healthy prostate in direction described,	$\frac{7}{8}$
Measurement of small prostate, weighing under 4 drachms .	$\frac{3}{4}$

8. On the nature of a part commonly called "the third" or "middle lobe."

By most authorities in this country, I believe, since the time of Home, the existence of a third or middle lobe, lying beneath the vesical orifice of the urethra, and between the posterior extremities of the two lateral lobes, is accepted as a fact in normal anatomy. I must confess that I have not been able to detect a portion of the healthy organ in this situation, sufficiently defined by form or position to entitle it to such distinctive appellation. In discussing the subject it may be well to revert briefly to its origin just alluded to. Sir Everard Home accorded the title to the part in question after five examinations of the organ by dissection performed by Sir Benjamin, then Mr. Brodie, and he announced the result as the "discovery of a middle lobe" to the Royal Society, Feb. 20th, 1806; the inquiry having been first instituted, to use the words of his paper, only two months before. "Previous to this investigation," says Sir E. Home, "it was not known to me that any dis-

[1] 'Mémoire sur l'Opération de la Pierre,' p. 21, Paris, 1836.

tinct portion of the prostate gland was situated between the vasa deferentia and the bladder. These ducts were considered to pass in the sulcus between the two posterior portions, in close contact with the body of the gland."[1] Notwithstanding this remark, the vasa deferentia had been described as perforating the posterior portion of the prostate by several of the anatomical authorities of the time, as Sir E. Home afterwards learned—a fact admitted in his first volume on the 'Diseases of the Prostate,' published five years subsequently, viz., in 1811. Respecting the five dissections spoken of, the author says, "the appearance was not the same in any two of them." The first preparation appears to have been from the person of an elderly patient "who had died in consequence of this part being diseased; the nipple-like process was very prominent." In the next, "there was no apparent glandular substance" at all in the spot indicated. All that is said of the third is, that "there was a lobe blended laterally with the sides of the prostate gland;" but that there was really no distinct portion marked off as a lobe is clear, from the importance attached to such formation being detected in two subsequent cases. The most distinct appearance was found in two subjects of twenty-four and twenty-five years of age respectively, and *upon the condition of the organs in these two* his account seems to have been based. Whatever may have been that condition (and it must be admitted that at all events no change similar to that of senile enlargement was likely to have been present in either) the presence of a distinctly marked portion, of a spheroidal form, situate between the ejaculatory ducts and the verumontanum or inner meatus of the urethra, is so rare an occurrence in early or middle life, as to mark an unusual state, whether congenital or acquired. Had the researches extended to a large number of bodies, it is certain that these cases must have appeared to be exceptional, as my own researches indicate such to be. Any appearance

[1] 'Philosophical Transactions,' 1806, paper viii. "An account of a small lobe of the human prostate gland, which has not before been taken notice of by anatomists." By Everard Home, F.R.S.

of a lobe in this situation must be regarded as belonging not to normal but to morbid anatomy, a slight development of it being usually attended with some signs of obstruction to the function of micturition. And, so far from being overlooked, it is in this light that it has been regarded after very careful examination by the earliest labourers in pathological anatomy, who have left to us the records of their observations. Thus Morgagni, in that vast collection of cases which forms his work 'De sedibus et causis morborum,' refers to it in several places as to a morbid growth causing retention of urine, in one of which he describes it, from his own dissections, in the following remarkably precise terms:

"A roundish protuberance of the bigness of a small grape, covered over with the internal coat of the bladder. What this protuberance was I readily supposed; and by forcing the knife into it, I cut through this and the contiguous prostate gland at the same time lengthways, and showed that it was of the same nature with the gland; that it was very evidently continuous from it, and that there was no doubt but, if it had grown out to a greater degree, it must have been a very considerable impediment to the discharge of urine." [1]

In another case he describes the same appearance, pronouncing it "beyond a doubt an excrescence of the prostate gland." [2] He quotes several similar cases from Valsalva, Thomas Bartholin, of Padua, and Valisneri, who, indeed, speaks of an enlargement, "as it were, a kind of lobe from the glandular substance" (of the prostate) "which rose up within the bladder of the shape and size of a walnut, and not on the anterior part, but on that which lies adjacent to the intestinum rectum." He enumerates others, mostly from the 'Sepulchretum' of Bonetus,[3]

[1] 'De sedibus et causis morborum per anatomen indagatis,' by J. B. Morgagni, 2 vols., folio, letter xli, article 18. Venice, 1761.

[2] Ibid., letter xxxvii, article 31.

[3] 'The Sepulchretum sive Anatomia practica,' by Theophilus Bonetus M.D., book iii, sections 24 and 25. Lyons, 1700.

besides alluding prospectively to another case which was subsequently detailed in the next letter of his own work; and then makes the following generalisations from the whole:

"If you attentively examine those examples which I have pointed out . . . you will observe that they were all from old men; and in like manner if you examine all my observations, in which there was the beginning of an excrescence, you will find that this was found to grow out in the very middle of the internal and upper circumference of the gland posteriorly; but whether all these things happened by chance or otherwise, future observations will show."[1]

Some considerable time after this, Morgagni returned to the investigation of this subject, and the cause of his doing so is of great interest in relation to the present inquiry. It appears that "a celebrated anatomist" of the time (Morgagni refers by these words without doubt to Lieutaud, although he does not mention his name, which he states to be his invariable custom when he proves a contemporary to be mistaken) declared that an eminence at the neck of the bladder was not a morbid growth, but "a small part quite natural and common to all bodies," calling it the "uvula vesicæ." Morgagni, therefore, devotes great part of the 66th and the whole of the 70th letters to the refutation of this view. In the former, stating that during forty-four years as anatomical professor he had carefully dissected 60 or 70 bodies, and found it only in 4; that he had made vivisection for the express purpose of seeking it there; but in vain; and that he had decided that it could be nothing but "a morbid excresence of the prostate gland appearing in old men . . . not rare, but not so frequent." That Valsalva, Pohlius, and his friend Santorini regarded it in the same light, the latter presenting it in a drawing as a body "prominent in diseased bladders,"[2] besides referring

[1] 'De Causis,' &c., letter xli, article 19.

[2] 'Observationes Anatomicæ,' by Jo. Dom. Santorini (Venice, 1724), chap. x, "De virorum naturalibus." In explanation of tab. ii, fig. 2, sections 20 and 22, pp. 201—5.

to it as "a circumstance which is diseased and unfrequent, and does not deserve to be exhibited as perpetual and constant, to the great detriment and misleading of younger practitioners."

Lastly, the 70th letter Morgagni devotes to the purposes of giving the result of his forty-fifth year of teaching anatomy, in relation to this very subject, stating that he had dissected in public five subjects, and in none of them, although he had sought it most carefully, was there any trace of this "roundish protuberance" or "uvula."

John Hunter similarly regarded it, after independent examinations of the organ, stating that "a small portion of it, which lies behind the very beginning of the urethra, swells forward like a point, as it were, into the bladder, acting like a valve to the mouth of the urethra." [1]

It seems remarkable, considering the very slight grounds upon which the existence of a distinct third lobe, as a normal and ordinary constituent of the prostate, was affirmed by Sir E. Home, that it should have been so generally received without question by English anatomists to the present day. It is denied by most, if not all, French observers. Cruvelheir expresses the general opinion when he says that the ejaculatory ducts being received into a groove or channel in the substance of the prostate, a portion of variable size is indicated by them, but that it has no title to be called a lobe. It is not, he says, an isolated piece, and should be called "the median portion." [2]

The conformation of the organ appears to be as follows: Two principal lateral divisions or lobes make up the greater part of the mass or body. Each may be supposed to resemble in form a truncated cone with a convex base. These being placed side by side with a small interval for the urethra, their substance is continuous above and below that canal; in the first-named situation forming a stratum which ex-

[1] 'Treatise on the Venereal Disease,' p. 170. 1788.

[2] 'Anat. Path. du Corps humain,' livr. xvii, p. 3 (Paris, 1835-42); also, 'Traité d'Anat. Path. générale,' par J. Cruvelhier, tom. iii, p. 46. Paris, 1856.

tends forward to the apex, but not quite to the base of the organ. Below the urethra another stratum extends throughout the whole length of the lateral lobes, and is thus nearly a third longer than the upper stratum. It is, as a rule, thicker also, and more so behind than in front. In the centre of its base the two ejaculatory ducts, closely applied to each other, side by side, perforate its substance, entering usually about three or four lines beneath the posterior urethral orifice. That portion of this stratum which lies above and upon the ducts, is that to which the name of "third lobe" has been given, and this it is which appears to increase most rapidly, when disposition to enlarge is present; whether, because it is the only part of the organ which is free from pressure, limitation or resistance by other parts, as has been suggested, or otherwise, may not be easy to determine. It then becomes more or less spheroidal or pyriform, by development upwards towards the cavity of the bladder, but under ordinary circumstances it does not affect this shape. Like other portions of the prostate, it sends its ducts directly to the urethra, and when it is enlarged, these also become more distinct. I cannot avoid, therefore, regarding the term "median portion," or better still, "posterior median portion," as more correctly indicating the part referred to; and at all events as not involving assent to the disputable theory which assigns to it an independent anatomical character.

4. On the existence of distinct tumours in the prostate.

It is very common in examining an enlarged prostate to find certain nodular projections from some part of its surface, indicating, as a very slight dissection will easily verify, the existence of isolated ovoid or spheroidal masses in the substance of the organ, it may be, wholly embedded or partially projecting from its surface. Sir E. Home observed the appearance, and described them as a species of apoplectic clots, marking the occurrence of internal hæmorrhages, to which he believed the organ extremely liable.

More recently they have been found to be composed, for the most part, of tissue identical with that which forms the greater part of the organ itself, viz., the organic muscular fibre, more or less interwoven with areolar fibres; some other specimens, exhibiting with various degrees of distinctness, elements which correspond to the secreting structures belonging to the prostate.

Their presence is much more common in the prostate of advanced age than, I suspect, is generally believed. I shall attempt to show that enlargement is very frequently associated with the development, more or less marked, of such growths in some one of three forms; in fact, that the production of defined tumour is, more frequently than otherwise, the essential element of the pathological condition generally known as hypertrophy of the prostate. I shall further attempt to show that a considerable analogy may then be traced between the "fibrous" formations and hypertrophies of this organ, and those which are so familiar to us in the female economy affecting the uterus.

We have seen that 14 prostates, in the series before us, are affected with unnatural development in some form or another. Of these, 6 exhibited numerous fibrous tumours in the substance of the lateral lobes. The others show polypoid enlargements, single, binary, or multiple, springing from the posterior median portion.

Of 70 specimens of enlarged prostate in the Museum of the Royal College of Surgeons, in 17 the isolated or embedded tumours are so clearly discernible, that the careful observer cannot fail to see them in the preparations as they stand in the containing vessels. There can be no doubt but many more would be found similarly affected could the test of dissection be applied. In a large proportion of the remaining preparations, there is a pyriform out-growth from the posterior median portion.

These tumours, as far as my examinations enable me to judge, naturally divide themselves into three principal or typical varieties.

The first is a simple fibrous tumour, seldom much larger

than a pea, often much smaller; it is generally firmer and of lighter colour than the surrounding prostatic substance. It is sometimes, perhaps, completely isolated. I have usually found a point at which vessels enter, or at which there appears to be some continuity of tissue between it and the organ in which it is embedded, but it appears to have very little vascularity. There is sometimes, but rarely according to my experience, a special enveloping cyst. The tumour is very easily enucleated, and then exhibits a smooth surface, and a form slightly ovoid and usually somewhat flattened. Occasionally it projects considerably from either lateral lobe into the cavity of the bladder, carrying with it an enveloping layer of prostatic substance. Microscopical examination shows it to be made up of closely packed organic muscular fibres with some areolar or connective tissue. The fibres appear to be sometimes arranged in concentric circles or whorls, which are characteristic, and have been frequently described and figured as peculiar to those "fibrous" tumours, the type of which that found in the uterus is considered to be.[1] But this I believe to be rare.

2. A tumour composed of the same elements as those just described, but containing in addition some of the glandular structure of the prostate, more or less imperfectly developed. This also may be embedded in the organ, and have a cyst, but its periphery is differently limited in different examples, appearing sometimes to be without a complete envelope, and to partake more of the character of a local enlargement limited to a small portion or lobule of the prostatic tissue, but not sufficiently isolated from the surrounding parts to be regarded as a defined tumour. The examples of this class appear to correspond very much with those local and limited hypertrophies which are seen to affect similar relations with the surrounding structures in the mammary gland. Although separating this class from

[1] *Vide* 'Gluge, Atlas der patholog. Anat.' part iv, tab. iv, fig. 14, 15. Bennet 'On Cancerous and Cancroid Growths, under the head of Desmoid Tumours,' p. 188.

the previous one for facility of reference, it is more than probable, I believe, that the two nearly merge into each other at their adjacent limits; the latter approximating to the former by insensible gradations; so that some tumours which may appear to be purely fibrous at first, may be found to exhibit slight traces in part of its structure of the glandular element. In all, however, the basis is *muscular fibre*.

3. A tumour composed entirely of the ordinary structures of the prostate fully developed (the glandular being still in smaller proportion than natural) and enjoying activity of function in common with the rest of the organ. It assumes a pyriform shape even in its earliest stage, and springs from the posterior median portion. Often single, there are sometimes two or even three such outgrowths apparently simultaneously developed from this part. One usually predominates, and ultimately entirely or partially obscures the others. It has its own special ducts, which traverse the pedicle to open in the urethra, and in its substance may be almost invariably detected those concretions which are found in the adult prostate. It may vary in size from a pea to a middle sized pear; and at the outset exerts a perceptible influence on the neck of the bladder, the lower or posterior border of which is gradually elevated as it increases. Ultimately it finds its way into the cavity of the viscus, where it is truly polypoid in shape.

Analogies of a remarkable kind exist between the characters and relations of these three forms of tumour and those which affect the uterus. Velpeau called attention to the fact some years ago. His views may be found in the 'Leçons Orales,' and in other of his writings.[1] He rested the analogy upon the correspondence which he assumed to exist in the two sexes between the uterus and the prostate, from a belief that the two organs originated from the same centres of development in the early condition of the ovum,

[1] Tome iii, p. 478. Paris, 1841.

coupled with the fact that both are liable to exhibit similar forms of tumour in after life.

The ground of analogy which is derived from regarding the uterus of the female and the prostate of the male, as the morphological equivalents in the two sexes, is not, perhaps, the strongest that might be adduced. I shall indicate one which I think is still more conclusive, as well as other points of analogy, the combined result of which will render the correspondence more obvious.

First.—In studying the typical plan on which the entire genito-urinary apparatus of the two sexes is constructed, the most recent labours of modern philosophical anatomists confirm the view that the analogue of the uterus (or perhaps of the uterus and vagina combined) in the male is the prostatic vesicle or utricle. This is the view taken by Leuckart, in a recent article written for the 'Cyclopædia of Anatomy and Physiology.' It has been also adopted by Dr. Simpson, in a very elaborate memoir on 'Hermaphroditism and Sexual Malformations Generally,' which first appeared in the same work, but which he has just republished, with considerable additions, in the second volume of his 'Obstetric Memoirs and Contributions.'[1] The prostate, then, though not of itself the absolute equivalent of the uterus, contains in it the utricle, situated as this cavity is in the very centre of the organ.

Secondly.—The point, however, on which I would lay greater stress is, that the prostate and uterus are organs whose bulk is constituted by the same tissue, viz., the organic muscular fibre. No other organ in the body besides these two is similarly constructed by thick masses of this tissue; elsewhere it is distributed in very thin layers. This analogy of structure is, in relation to the pathological question before us, stronger than that of identity of origin in early fœtal life, since it has more influence, doubtless, in determining the appearance of tumours and outgrowths of similar character than any other circumstance.[2]

[1] Vol. ii, p. 684. 1839.

[2] Professor Kölliker showed, a few years, since that the prostate was

Thirdly.—The two organs thus similarly constructed exhibit growths identical both in external and histological characters. Thus in the uterus we find tumours nearly or completely isolated, made up of organic muscular fibres, embedded in the parenchyma of the part, or standing out in relief from either surface. In the prostate we meet with precisely the same tumours, and they are similarly disposed. But while in some of the prostatic tumours a very small proportion of partially developed gland-tissue may be found intermingled with the muscular basis, this circumstance should be regarded, I think, rather as an accident of situation than as indicating any material difference between them and the purely muscular tumour.

Again, in the uterus we are familiar with another form of tumour, having the same elementary constitution as the preceding, which, springing from the interior and forming a polypoid growth there, is much more intimately connected with the uterine structure than the variety above described, perfect continuity of tissue existing between it and the polypus. So from the posterior median portion of the prostate, we meet with an outgrowth, truly polypoid in form, which continues its development in the direction of least resistance, and exhibiting complete continuity of structure with that of the prostate itself. It contains also the glandular elements proper of the prostate, which exist in small proportion as compared with the organic muscular

very largely composed of organic muscular fibre, this tissue constituting at least two thirds of the organ. And more recently, Professor Ellis, of University College, has examined its structure, and concludes that it "is less of a glandular than a muscular body, and is only a largely developed portion of the circular muscular layer that invests all the urethra behind the bulb or the spongy portion." And again, "As only so small a portion of the prostate is glandular, the propriety of calling that body a gland is rendered doubtful, for the small secreting glands contained in it are but appendages of the mucous membrane, which project amongst the muscular fibres in the same way as the other glands of the urethra extend into the surrounding submucous tissues." 'Med. Chir. Trans.' vol. xxxix, pp. 331-2.

tissue, forming as this latter does in the normal condition not less than two thirds of the organ, probably more.

It may further be observed that all these tumours, but especially those of the simple "fibrous" (muscular) kind, may remain of so small a size, both in the uterus and in the prostate, that the bulk of the organ is not sensibly increased as in preparation No. 43, and no signs indicating their existence during life are produced; while, on the other hand, they may increase to an enormous extent, so as to exceed, by very many times, the natural size and weight of the organ in which they originated, and give rise to the most alarming derangements of function.

Fourthly.—The two organs are subject to considerable hypertrophic enlargement, mainly consisting of their constituent fibrous and muscular elements. And in both, this condition may be associated with some tumour formation, or it may exist independently of it. In the latter case, the hypertrophy may be general or local, affecting the whole or certain parts of the organ; and when thus local, affecting particular spots more commonly than others. All these remarks apply equally to the prostate and to the uterus.

Fifthly.—The two organs are liable to these changes after the prime of life has passed. Bayle, whose observation is quoted by Rokitansky and verified by Dr. Robert Lee, says that 20 per cent. of women after thirty-five years have fibrous tumours of some size in the uterus. I have found prostatic tumour in 30 per cent. of males after 50. In women, however, the tendency to this formation declines after fifty, although it cannot be said to cease. Nevertheless, it is exceptional after that period. It is generally regarded as most active during the term of uterine functional activity, or during the latter moiety perhaps of the time. The age at which the reproductive function of man is most vigorous is certainly not that at which a like tendency in the prostate is evinced; but, on the other hand, it may not be forgotten that the term of productiveness is not limited in the case of the male as in the opposite sex. And still further it may, I think, be fairly admitted that our acquaintance with the

prostatic function is not at present sufficient to forbid the supposition that it is even possible that its activity may not at all diminish during the middle and later years of life, when the hypertrophic disposition is manifested. One thing is certain, the prostatic secretion, whatever its purpose, does not appear to be then less plentiful, judging from the state of the organ after death, than at any previous age.

5. On the existence of minute "concretions," their mode of production, and their relation to the formation of prostatic calculi.

When an adult urethra is laid open, we frequently observe in its prostatic part, lying around the verumontanum, and in the orifices of the prostatic ducts especially, numerous little brownish or blackish bodies, the largest of which ordinarily met with are about the size of poppy seeds. They do not lie free in the canal, but generally just within some of the orifices alluded to, sometimes beneath the epithelial layer of the mucous membrane of the urethra barely visible over them. Again, when a section of the prostatic substance is made, especially if the knife be directed backwards and outwards on either side of the verumontanum, many of the same bodies may frequently be seen. Indeed they may be dispersed through all parts of the organ, although they do not attain, except in rare instances, the size named in situations very remote from the urethra. These bodies are exceedingly well known, and have received the name of prostatic concretions. They have in their origin no relation to urinary calculi, nor should they be confounded with the hard, white, porcelain-like masses, which are peculiar to the prostate, and from which they differ also. They are not generally observed before middle or advanced age; but, although, as a rule, to which there are occasional exceptions, no examples visible to the naked eye can be detected during the period of youth and early manhood; the microscope reveals them of small size *at all ages except that before puberty.*

In the series of prostates referred to, after a minute and

careful examination, I have detected these bodies in *every instance.* I have found them also in one specimen at fourteen years of age, and I have failed to find them in childhood. There is great difference, however, as to their number in different cases. In most, after fifty years of age, they are obvious enough to the naked eye in the urethra around the verumontanum as soon as the canal is laid open; in others it is necessary to make section of a lateral lobe, to scrape the surface and place the milky fluid under the microscope, when they may be seen sometimes in small, sometimes in large number.

At other times it may be necessary to make several such sections before finding any. They are smaller, paler in colour, or even almost destitute of it in young subjects, and *vice versâ* in aged; but there is by no means an unvarying relation in regard of number, size, &c., between their development, and the age of the subject. In No. 40 of the series of preparations, from a man aged sixty-six years, I found more than in any I have ever examined, including subjects from eighty to ninety. I estimated the number of dark-coloured concretions visible to the naked eye in this specimen as amounting to several thousands.

In the early stages of formation they present very beautiful microscopic objects, varying in size from the $\frac{1}{1000}$th to $\frac{1}{100}$th of an inch, mostly oval in form, sometimes angular, and then apparently from the result of mutual pressure. They have a yellowish hue varying between the faintest tint and a deep orange, evidently acquiring intensity of colour with age or increase in size. They have a well-defined outline, as if limited by a kind of cell-wall, and exhibit numerous concentric rings in their interior, which, although the object is more or less translucent, suggests the appearance of a uric acid calculus when cut, a resemblance which no doubt originally caused them to be confounded with formations of this class. (Plate I.) The central part has usually a cellular appearance, as if constituted by a conglomeration of corpuscles partially fused together. (Pl. I. *f.*)

Sometimes the concretion appears to consist almost

entirely of these, others exhibit very few in proportion to the concentric rings, in which latter no trace of corpuscular arrangement can be detected. It is easy to trace a series of these small semitransparent bodies, as it were, in successive stages, until they gradually become the dark, almost opaque forms at first described. Even in the latter some remains of the concentric arrangement may be occasionally observed; but, generally speaking, they are too dark and opaque to transmit light; and only appear as dark brown masses of spheroidal form, with enough of translucency to enable the eye to detect easily, at their edges, that they have really a deep orange or red colour. In consistency they have also considerably changed, being at first soft, they become hard and even brittle.

Their chemical actions are peculiar. The small, soft, pale, and yellow bodies are not acted on by acetic, nitric, or hydrochloric acids, cold, nor by sulphuric ether, liquor potassæ, or ammoniæ. The larger, hard, and brownish concretions I have found to be unaltered by alkalies, except that they become rather more translucent. By nitric and hydrochloric acids they are sometimes influenced, giving off a few bubbles of gas, and slightly diminishing in size. Sulphuric acid liberates gas more rapidly, and sometimes after the other acids have ceased to act. Occasionally they become soft, and disintegrate into amorphous matter, losing very little of their colour or bulk by immersion in sulphuric acid.

In order to obtain an exact qualitative and quantitative analysis of these bodies, I submitted about 200 of the hard, dark-coloured concretions to my friend Dr. Squire, who, after a careful investigation, has furnished me with the following report:

"Immersed in acetic acid the concretion resists its action, but if broken before this agent is applied it becomes slightly softened and swollen. Nitric acid, cold, has no effect; when hot it dissolves the concretion entirely, producing a very slight yellow tint. A section of the concretion treated with a solution of iodine does not change colour. Sulphuric

acid and sugar do not produce any effect characteristic of protein. When treated with a solution of potash, hot or cold, there is no change, and on adding an acid no precipitate is formed in the alkaline liquid. When the concretion is heated, a strong ammoniacal odour is evolved.

"From these reactions I conclude that the organic constituent of the concretion is not a true protein body, but most probably belongs to that class of nitrogenized substances, sometimes termed protein derivatives, of which fibroin, gelatin, and chitin are examples.

"The following results were obtained by incineration: Concretions, ·0244 gramme, yielded of ash, ·0112, which equals 49·5 per cent. of residue. This consisted chiefly of phosphate of lime, with a small quantity of the carbonate."

Is the presence of these concretions in the prostate gland to be regarded as a natural or as an abnormal circumstance?

Generally speaking they have been considered abnormal. One of the most recent writers on the subject, Wedl, regards them as the product of enlarged prostate.[1] From the fact of their presence in every one of the fifty specimens, I cannot but conclude that their existence is a necessary result of the performance of natural functions on the part of the prostate, although there does not appear to be any evidence to show that they ultimately disintegrate, and yield up some elements to the natural secretion of the organ, as has been suggested.

In examining by the microscope the fluid contained in the prostatic ducts, I have observed that, in addition to the corpuscles, obviously epithelial or glandular, which are found in it abundantly, there are always present also, and in considerable number, some small yellowish bodies, in appearance sometimes granular, sometimes homogeneous, about the size of red blood-corpuscles, but not so uniform, being from about $\frac{1}{5000}$th to $\frac{1}{2500}$th inch in diameter; possess con-

[1] 'Rudiments of Pathological Histology,' by Carl Wedl, translated by G. Busk, F.R.S., p. 269, 1855.

siderable refractive power, nearly so much as to give them a resemblance to oil-globules (Plate II. fig. 5). They are not acted on, however, by ether, nor by the other reagents already named. They are not only found in the prostatic fluid, but may be washed from sections of the organ, and may be found lying in clusters in various parts of it.

Further, it is common to see small ducts and cæcal pouches stuffed with these bodies, as well as with yellow granules of smaller size, several marked examples of which are seen (Pl. I. *ii*, and Pl. II, fig. 1, 2). In the larger masses occupying crypts or follicles of the glandular structure, they may be seen not only cohering but fused together, and then an appearance is presented identical with that which is observed occupying the centre of the larger concretions. Judging from these appearances, and the frequency of their occurrence, I cannot but conclude that the coalescence of these yellow bodies or granules, their partial fusion into a mass more or less homogeneous, the stratification, perhaps, in part of this mass itself, or more probably the deposit upon its surface of fresh layers of fluid matter, similar to that which originally constituted the yellow bodies; and finally some additions of earthy matter to it, either by infiltration or accretion, are the steps by which the formation of a a prostatic concretion is very frequently accomplished.

The appearances thus described are very accurately shown in the accompanying drawings by Mr. Tuffen West; and the identical parts there represented were placed beneath microscopes for the purposes of comparison and examination.

Perhaps all these yellow bodies are originally composed, that is, in their earliest stages of formation, of purely organic matter, and that matter a product of the secreting structures of the prostate. At a very early period, however, they seem to be impregnated with the earthy constituent, in some form or proportion which does not much impair the translucency of object. Most appear to remain in this condition, although liable to considerable increase in size after their formation, which probably at first depends on that of the cavity in which the aggregation occurs.

When circumstances give rise to an addition of *opaque* earthy matter to the concretion their size increases, not only by such addition, but by that also of the organic matters with which such deposits are associated. It is then that they acquire density, opacity, and give proof of the presence of mineral constituents, in large quantity, to chemical reagents.

The acquisition of this opaque earthy matter may be thus explained. A concretion having formed within a follicle, and the size having greatly increased by fresh layers of secretion it becomes sooner or later a kind of foreign body, and as such creates a certain degree of irritation. Now, from mucous membranes throughout every part of the body, illustration may be derived of a mode of action by which they deposit opaque earthy matter under certain forms of irritation, this product in all cases consisting chiefly of phosphate with a little of the carbonate of lime. The secreting membrane of the follicle appears to produce a fluid from which earthy salts are precipitated upon the nucleus until its size has increased from that of a microscopic object, it may be under favorable circumstances, even to that of a grain of pearl barley, or of a pea, or even larger. Before arriving at this condition, the walls of the containing follicle have become absorbed and have disappeared, other concretions from neighbouring cavities have come into contact with it, and thus several may be found occupying together a single sac, in which the work of deposition ceases. Here the concretions, or calculi as they may be now considered, may lose their spheroidal form, and acquire facets by attrition and juxtaposition.

Thus it happens, then, that at various stages of its formation, the chemical analysis of a prostatic concretion will exhibit a different result, being found to contain a larger proportion of organic matters in the early period when only visible to the eye as a dark point, and more of inorganic when as large as those of the extreme sizes just described. Analyses of the latter have frequently been made, as by Wollaston, Lassaigne, and others; and the inorganic

matter amounted to 85 per cent. instead of 49½, as found in the smaller kinds examined here.

What the small yellow bodies are, I am not able to state with absolute certainty. Whether they are themselves altered secreting cells from the gland-follicles, or whether only the product of secretion by these structures, does not at present clearly appear. Thus much I have observed, that the small fusiform and spheroidal epithelium lining the prostatic ducts, is often loaded with yellowish granular matter, appearing to be identical with that seen in a free state elsewhere, which seems to favour the view that it is a gland-secretion (Plate II. fig. 3, 4). It may be added, that I have found similar yellow granules in the fluid of the vesiculæ seminales also, in which, at all events in elderly persons, they appear to be more constant than are spermatozoa (Plate II. fig. 6). In this situation, bodies which are evidently the same, have been described in a recent article on the vesiculæ seminales by Mr. Pittard, in the 'Cyclopædia of Anat. and Phys.,' as "very numerous insoluble globules which have a great tendency to coalesce, and appear very much like oil; their refractive power is, however, less, and there are other reasons for doubting that they are really globules of oil." Besides these, the same writer finds "suspended little conglomerated masses of transparent solid, just visible to the naked eye," which have, under the microscope, the appearance of "a nodulated mulberry-like surface, as if composed of smaller balls;" these he thinks are made up by a coalescing of the minute globules above mentioned.

Virchow believes these concretions to be derived from a peculiar insoluble protein-substance mixed with the semen. Wedl, before referred to, regards them as identical with certain bodies found abundantly in the enlarged thyroid gland, and with those met with in the brain and spinal cord, especially in elderly subjects, and named "Amyloid bodies" by Kölliker and Virchow. He believes all these to be the result of a pathological exudation frequently occurring in various organs in advanced age, and which he terms "colloid" matter, on account of its resemblance, in

physical characters, to liquid glue, and he proposes to call the concretions in question "concentric colloid corpuscles," He regards them as "principally composed of an organic substance, and consequently that the names of 'stones' and 'concretions' are inappropriate;" although he has occasionally observed that the colloid matter is deposited upon some of the rounded or nodular forms of calcareous salts which are found scattered in the parenchyma of the prostate, and which thus form the nuclei of some few of the concretions.[1]

Reviewing, however, all that has been ascertained respecting the mode of formation of the constitution of these bodies, I see no objection to the use of the term "concretions," at all events to the smaller formations which have been described. Nor perhaps would it be easy at present to employ a better, since it is one which involves no theory except the simple one, that the mode of aggregation of their component parts is mechanical rather than organic in its essential character. When they have arrived at a size sufficient to occasion, as sources of irritation, the deposit of earthy matter in the manner above referred to, they may be regarded as belonging to the category of calculus rather than of concretion. The inorganic component now becomes predominant; the formation increases in size, and although there is no exact period at which it can be said to cease to be a concretion and to become a calculus, yet there can be no hesitation as to which of the two terms should be applied to most examples met with of either kind.

[1] 'Rudiments of Pathological Histology,' by Carl Wedl, translated by George Busk, F.R.S., for Sydenham Society, 1855, pp. 38 and 271.

Tabular View of Fifty Preparations of the Prostate from the Adult; showing its Size, Form, Weight, and other Particulars relative to its External and Internal Anatomy.

Accompanying a Paper on the Anatomy and Pathology of the Adult Prostate, by Henry Thompson, M.B., F.R.C.S.

PROSTATES.

No.	Age.	In what respect abnormal.	Normal.				Abnormal.				Remarks.
			Weight.	Length.	Breadth.	Thickness	Weight.	Length.	Breadth.	Thickness	
			drms. grs.	inches.	inches.	inches.	drms. grs.	inches.	inches.	inches.	
1	79		4 48	1·4	1·45	·85					Numerous dark concretions in the urethral orifices of the prostatic ducts, and in substance of organ.
2	71	General enlargement slight, chiefly of posterior median portion "middle lobe."					6 40	1·65	1·9	·9	Concretions in substance of organ.
3	72	Left lobe larger than right.					5 18	1·3	1·7	·9	Numerous concretions in prostatic ducts.
4	42		3 37	1·3	1·4	·6					Concretions.
5	47		4 57	1·8	1·7	·65					Numerous concretions in urethra.
6	85		4 44	1·25	1·55	·95					Numerous concretions in urethra. The form of the organ is peculiar, being as it were compressed from before backwards.
7	47		5 33	1·4	1·7	·9					From a large subject; a full-sized prostate.
8	63		4 35	1·35	1·7	·7					Concretions.
9	56	Very small tumors, exhibiting glandular structure, with a large proportion of organic muscular fibre.					5 22	1·55	1·75	·75	Concretions.

10	50		4	34	1·5	1·7	·65					Concretions.
11	54	A small tumor attached to verumontanum. Organ normal in weight and size.	4	8	1·25	1·8	·75					Polypoid tumour from verumontanum, made up of muscular fibres, connective tissue, and fusiform cells. About five eighths of an inch long, directed backwards to the bladder.
	90											Abundance of concretions in urethra.
	52											
12	54		4	58	1·25	1·85	·85					Numerous concretions in urethra.
13			4	13	1·5	1·75	·6					Concretions.
14		The "utricle" here admitted a No. 12 catheter and was three quarters of an inch long.	4	37	1·5	1·75	·7					As concretions were found in every specimen examined, and in nearly one half of the cases, lying not only in the ducts and follicles of the gland-tissue, but also in the mouths of the ducts in the urethra, so as to be seen on opening the canal, the facts will not be again noted separately in this table.
	66											
	63											
15	73		4	27	1·4	1·5	·65					
16	79		4	3	1·35	1·5	·65					
17	60		2	58	1·1	1·8	·6					
18	54		4	2	1·4	1·6	·55					
19			2	57	1·2	1·45	·55					
20			4	50	1·5	1·7	·7					A number of prismatic crystals of the triple phosphate were seen in the anterior portion of the organ on making section.
	70											
	56											
21			4	55	1·4	1·8	·7					
22		General enlargement. Lateral lobes projecting into the urethra.						6	0	1·3	1·8	1·0
	66											
	74											
23	61		4	56	1·4	1·7	·75					
24	56		4	4	1·3	1·6	·7					
25	2		4	16	1·3	1·6	·8					
26			3	56	1·25	1·75	·75					
27		Atrophied. Patient died of phthisis, with great emaciation.	2	46	1·25	1·3	·55					

No.	Age.	In what respect abnormal.	Normal.				Abnormal.				Remarks.
			Weight.	Length.	Breadth.	Thickness	Weight.	Length.	Breadth.	Thickness	
			drms. grs.	inches.	inches.	inches.	drms. grs.	inches.	inches.	inches.	
28	21		3 34	1·3	1·4	·7					
29	40		4 30	1·55	1·6	·75					
30	62	Posterior median portion enlarged and two or three small glandular tumors in right lateral lobe.					7 15	1·8	1·7	·85	On opening the bladder, a nipple-shaped body was seen behind the internal orifice of the urethra. On making section of the organ it was seen to be formed of a pyriform outgrowth from the posterior median portion, with a narrow neck, reaching *an inch* from the point at which the *vasa deferentia* enter. It was glandular.
31	74	Full of tumors, fibrous only. See vol. vii, 'Trans. Path. Soc.' where the specimen is drawn and described.					12 30	2·25	2·4	1·75	Died of cystitis from enlarged prostate.
32	64		5 2	1·4	1·75	·9					The consistence of this prostate is unusually solid.
33	50		5 20	1·55	1·75	·8					
34	73	General enlargement, chiefly of posterior median portion.					7 15	1·5	2·0	·8	
35	61	Enlargement of posterior median portion. Lobular hypertrophy of lateral lobes well marked.					7 25	1·5	1·9	1·0	
36	73		4 48	1·6	1·8	·6					
37	50		4 46	1·4	1·9	·55					
38	46		5 4	1·5	2·0	·55					
39	66		4 35	1·5	1·75	·6					The ducts throughout this prostate show remarkably well what is not unfrequently seen, viz., that they are

											stuffed with small concretions, and with the elements of which concretions appear to be formed.
40	66		4	6	1·5	1·65	·6				Two or three cavities in the organ near the verumontanum size of grain of wheat, filled with small black concretions. There were literally thousands of these in this prostate.
41	64	Three small pedunculated outgrowths from posterior median portion.						6	20	1·5	1·9	·75	These outgrowths are glandular. No symptoms during life.
42	75	General hypertrophy with numerous small tumors, and enlarged lobules of the organ not quite isolated.						9	50	1·7	2·1	1·0	Some little difficulty in micturition during life. Many cavities containing concretions. Many triple phosphates also.
43	79	No enlargement, but numerous very small tumors, fibrous only.						4	36	1·3	1·75	·8	
44	50	Pyriform growth from median portion.						5	50	1·3	1·8	1·0	Occasionally slight difficulty in micturition latterly. Outgrowth glandular in structure.
45	65	Pyriform growth from median portion.						6	18	1·5	1·7	1·0	Glandular in structure.
46	65		4	24	1·4	2·0	·6						
47	55	Full sized, but not morbid.	5	30	1·3	1·8	·85						
48	62	Two small elevations from posterior median portion, glandular. One tumor on each lateral lobe, purely fibrous.						6	5	1·4	1·9	1·0	Cyst-like cavities as large as a pea, containing many concretions.
49	54		4	48	1·4	1·75	·7						
50	61		4	54	1·3	1·75	·75						

ON

DISARTICULATION OF THE SCAPULA

FROM THE SHOULDER-JOINT.

BY

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HAVING lately had occasion to perform an operation, which, so far as I am aware, is new in the practice of surgery, I venture to hope that some account of it may not be deemed unworthy of attention by this Society, in whose 'Transactions' are recorded so many additions to the resources of surgical art.

Janet Scott, according to her own account, about sixty, but as it was afterwards ascertained, nearly seventy years of age, was admitted into the Royal Infirmary, on the 18th of September last, on account of a large tumour involving the left scapula. In size and form it resembled a cocoa-nut, its consistence in some parts presented the hardness of bone, and in others was elastic but firm. A distinct aneurismal bruit could be perceived throughout the swelling, which also communicated a strong pulsatory movement to the hand when placed over it. The patient stated that she had first noticed the enlargement about six months before the time of her application to me, when it was the size of an orange, and had suffered little inconvenience from it until a recent period, when, not only from rapidly increasing, but also from causing painful sensations, it had

rendered her unable to discharge her duties as a domestic servant in the country.

As the growth extended into the axilla, it was evidently impossible to afford relief by any partial removal of the scapula, and as amputation of the arm, together with the tumour, independently of the objection that might be expected from the patient to so fearful a mutilation, appeared altogether hopeless of success at her advanced time of life, I took into consideration the practicability of disarticulating the affected bone alone. The tumour, if not aneurismal, was evidently very vascular, and I knew from the previous experience of partial operations that the removal of the whole bone could not be accomplished without a formidable amount of hæmorrhage. On the other hand, I thought there was reason to expect that, if the subscapular artery were secured at an early part of the process, the clavicular and humeral attachments might be separated without much loss of blood, and that then the remaining connections would admit of such rapid division as to place the cut vessels almost immediately within reach of compression. It also appeared probable that, if the object were thus accomplished without an excessive drain on the patient's strength, there would not be any other serious obstacle to recovery, or threatening source of danger, and I therefore resolved to perform the operation.

On the 1st of October, the patient being fully under the influence of chloroform, and placed upon her right side, I made an incision from the acromion process transversely to the posterior edge of the scapula, and another from the centre of this one directly downwards below the lower margin of the tumour. The flaps thus formed being reflected without much hæmorrhage, I separated the scapular attachment of the deltoid, and divided the connections of the acromial extremity of the clavicle. Then, wishing to command the subscapular artery, I divided it with the effect of giving issue to a fearful gush of blood, but fortunately caught the vessel and tied it without any delay. I next cut into the joint and round the glenoid cavity, hooked my

finger under the coracoid process so as to facilitate the division of its muscular and ligamentous attachments, and then pulling back the bone with all the force of my left hand, separated its remaining attachments with rapid sweeps of the knife. The vessels requiring ligature having been tied, the edges of the wound were stitched together and covered with dry lint, a bandage being lastly applied round the chest to give proper support, and keep the arm in its place.

The tumour, when examined, was found to consist of a nearly uniform expansion of the bone into a bag, partly membranous, partly osseous, containing a soft very vascular growth of the cerebriform kind. It may be seen from the preparation before the Society, that this condition, not only extended up to the spine of the scapula, but also implicated the margin of the glenoid cavity, so that any operation which did not reach the joint could not have extirpated the whole existing disease.

Everything went on favorably after the operation, and a great part of the wound healed by the first intention. The discharge, which was at first rather copious and thin, in the course of a few days diminished to an amount so small, as to remove all apprehension of its exhausting the patient, especially as she retained a good appetite, even for the porridge which had been her principal article of diet previously, slept soundly, and presented a cheerful aspect. At the end of a fortnight the discharge was reduced to little more than sufficient for staining the bandage, so that it seemed as if complete recovery would very soon be accomplished. But through an opening about an inch in length, where the edges of the transverse incision remained ununited, the head of the humerus could be seen still covered with its cartilage, which, however, in the course of another week began to disappear, and to give place to granulations gradually extending from the neck over the convexity of the bone; while the cavity at the same time contracted until the humerus and clavicle came nearly in contact, and the shoulder, especially when viewed in front, assumed a wonder-

fully natural appearance. The patient, who from an early period after the operation had with difficulty been restrained from using the arm too freely, again and again declared that it was in no wise inferior to the sound one, and it appeared, indeed, that through the support afforded by the clavicular portion of the deltoid, together with the action of the pectoralis and latissimus dorsi, the limb would be able to execute a fair degree of motion.

While the local state of matters was thus proceeding in the most favorable and satisfactory manner, it could not escape observation that the patient's strength did not improve in a corresponding degree. On the contrary, without any reason that could be discovered except old age, she gradually became weaker and more emaciated, though still retaining appetite for food, and performing her bodily functions with so much appearance of health as still to encourage the hope of ultimate recovery. But towards the end of November symptoms of sinking suddenly presented themselves, and terminated in death on the 1st of December.

Although it would have no doubt been more satisfactory if the patient had lived longer, it is evident that the progress of her case was sufficiently advanced for the settlement of some points possessing practical importance. It thus appears, in the first place, that the entire scapula may be disarticulated from the shoulder-joint without a loss of blood to any great extent; 2dly, that the wound resulting from this operation does not necessarily occasion an excessive amount of discharge; and, 3dly, that the arm which remains is not a useless appendage, but a serviceable limb. The value of these facts will of course depend upon the field admitting of their application to practice; and the extent of this can hardly be determined at present, since morbid conditions, involving the whole scapula having been hitherto regarded as irremediable, may not have seemed deserving of record. One remarkable case, which would have afforded an excellent opportunity of performing the operation, is strongly impressed upon my memory, and may not be unknown to some members of the Society. I allude to that

of the boy whose history Mr. Liston has related in his 'Elements of Surgery,' and more fully in the 'Edinburgh Medical and Surgical Journal' for 1820. The patient, a youth sixteen years of age, had come from the country on account of a tumour involving the scapula, and been dismissed from the Royal Infirmary as incurable. He was then placed under the care of Mr. Liston, who, finding that the growth was confined to the bone, and that it moved freely over the ribs, resolved to operate. The tumour, which was about the size of an orange, had been first perceived about three months before, situated immediately below the spine of the scapula, not larger than a filbert, of a flat form, and attended with distinct pulsation. It subsequently increased with great rapidity until it extended from the inferior angle over two thirds of the scapula. It was uniformly convex, and possessed a very firm consistence, but yielded under strong pressure with a crackling sensation.

The external surface of the tumour was exposed without any difficulty; but when the operator attempted to separate its attachment to the spine of the scapula, such a gush of blood issued as to require the most energetic measures of suppression. The subscapular and other vessels concerned in this hæmorrhage having been secured, Mr. Liston sawed across the scapula so as to leave merely its upper portion to the extent of about a third part of the spine. The tumour was found to consist of an osseous shell composed of plates directed from the circumference towards the centre, and containing a coagulum of blood in its cavity. It has generally been regarded as an example of osteo-aneurism, but I believe was rather a form of cerebriform disease. Notwithstanding the patient's extreme exhaustion during and immediately after the operation, everything went on favorably until between five and six weeks, when a fungous excrescence appeared at the upper part of the wound. This was removed so as to expose the bone and allow it to be cauterized; but resisted the check thus opposed to its growth, and showed that so long as any portion of the scapula was permitted to remain, there could not be any

reasonable expectation of recovery. Mr. Liston therefore proposed to remove the part which had been left at the former operation, together with the arm, but could not obtain the sanction of any surgeon in Edinburgh for such a formidable proceeding, and did not feel warranted to undertake it upon his own responsibility. He then, as a last resource, applied to Dr. Barclay, who was a most energetic and successful teacher of anatomy, but had never been engaged in professional practice. At the consultation which now took place, all the arguments in favour of interference, such as the hopelessness of the case, the youth of the patient, and the sort of precedent afforded by Cheselden's remarkable history of Samuel Wood, the miller, who recovered after his arm had been torn off along with the scapula, were met by one insuperable objection, which was the danger, or rather, as it seemed, certainly fatal effect that must attend division of the great blood-vessels so near the heart. Nothing therefore was done, and the patient, after lingering in great misery and being finally exhausted by repeated hæmorrhages, died five months after the operation.

In this case the practicability of disarticulating the scapula from the shoulder joint would have been a most welcome suggestion, and prevented much painful as well as never-ceasing regret by affording means of relief not exposed to the objections which prevented adoption of the formidable mutilation that had been proposed as the only mode of remedy. I may add that knowledge of the independence of the arm in regard to mobility on the presence of the scapula will tend to encourage greater freedom in operating for disease of the shoulder joint than has hitherto been practised. Upon these grounds I venture to hope that the communication which has now been offered to this Society may prove not entirely useless, and that although the operation did not lengthen the life of the patient directly concerned, it may become the means of doing so under other circumstances more favorable for complete and permanent recovery.

ON

A NEW METHOD OF OPERATING

FOR

IMPERMEABLE URETHRA.

BY

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In the communication on the remedy of stricture by external incision, which upon a former occasion was submitted to this society, I endeavoured to show that the nature of stricture was inconsistent with impermeability, and that whenever the urine could pass through the urethra, an instrument might be introduced into the bladder. It was far from my intention to allege that any surgeon could accomplish this in every case, at once and with ease. Many patient trials may be requisite before success is attained, but, with time and care, my belief was, and is, that no degree or form of contraction can be truly considered as impermeable. Still less, if possible, was it my intention to deny that, in consequence of wounds or sloughing, the urethra might become completely obstructed beyond the fistulous opening, in regard both to the exit of urine and to the introduction of instruments. Such cases, though certainly rare, unquestionably do occasionally occur, and when presenting themselves, have hitherto proved very troublesome subjects of treatment.

There being no passage for the introduction of instruments, it has been deemed necessary to cut upon the point of a

catheter passed down to the seat of obstruction, so as to clear the way for its conveyance into the bladder, where it may remain until the textures concerned are sufficiently condensed to prevent extravasation of urine. Nothing can be more simple in theory, or apparently more easy of execution, than this procedure; but any one who has undertaken it, or witnessed its performance, must be prepared to admit that there are few operations in surgery so embarrassing and uncertain. The thickened and indurated state of the perinæum, together with the distortion of form apt to result from the wound or sloughing that caused the fistulous opening, render it extremely difficult, or rather, indeed, almost impossible, to cut exactly in the proper course of the urethra, while any deviation from it may produce the most serious consequences. Thus, if the knife strays in a lateral direction, it is pretty sure to occasion hæmorrhage; and, as ligatures are of no use in such circumstances, there must then be a resort to pressure, which, by impeding the escape of urine, will expose the patient to its injurious or fatal infiltration. If again the knife from cutting upon the end instead of the point of the catheter, as it is very apt to do, should not make a direct passage through the seat of obstruction, but leave a sort of projection between the two free parts of the canal,—although its immediate effect may prove less disastrous, the result can hardly be satisfactory in regard to either the completeness or permanency of recovery, since there will always be a hitch at the part, requiring instruments to be carefully guided past it by depressing the point, impeding the flow of urine, and increasing the tendency to contraction.

By one of those curious coincidences so frequently observed in surgical practice, two cases of obliterated urethra lately came under my care at the same time. One of these was that of William Scott, æt. 44, from Dunblane, admitted into the Royal Infirmary on the 21st of last October. He stated that on the 12th of August, in getting out of bed during the night, he slipped his foot and fell astride upon

the back of a chair, so as to bruise the perinæum. Next morning, being unable to pass his water, he sent for a surgeon, who introduced a catheter and emptied the bladder. During the three following days he voided his urine with ease; but on the fourth began to suffer pain in micturition. Swelling in the scrotum and perinæum then took place; a slough the size of his hand separated from the former, and all his urine issued through an opening in the latter. After being reduced to a state of extreme weakness, he had in some degree regained general health; but never passed a drop of urine through the urethra. On examination, it was found impossible to pass any instrument through the seat of obstruction.

The second case was that of a seaman recommended to my care by Dr. Boyd, of St. John's, New Brunswick, who sent the following account of his case:

"Peter Scott, seaman, æt. 28, was admitted into the Provincial Marine Hospital, at St. John's, New Brunswick, on Thursday, 10th July, 1856, at 10 o'clock a.m.

"When going on board his ship last night about 12 o'clock, the night being very dark, he walked over the end of a quay, and fell astride a projecting log, twenty feet below the surface, and thence to the ground, whereby he received a very severe contusion on the perinæum, which, together with the penis and scrotum, were perfectly black from extravasated blood. I bled him, and applied cold lotion to the parts after placing him comfortably in bed.

"6 p.m. Made very careful and repeated attempts to pass a catheter into the bladder. The instrument was passed with the greatest ease, and suddenly stopped after its whole length had been introduced, but no urine followed; there seemed to be a false passage. As he was not suffering inconvenience from desire to pass water, I considered it prudent not to persist. There was no bleeding from the urethra.

"11th.—9 a.m. Again attempted to pass a catheter, but with the same result. As the bladder was distended, and

there was much desire to pass urine, I considered the case a very perilous one, and requested the advice of others. Upon consultation it was agreed upon to make an incision into the perinæum with the view of finding the urethra, and passing an instrument in that way into the bladder. Upon cutting into the perinæum much blood was found effused, and the coagulum being removed it was discovered that the urethra had been completely destroyed by the contusion, neither the bulb of the urethra, nor the prostate gland could be satisfactorily felt; there seemed to be a sort of sac which had been filled with blood. The os pubis was fractured near the symphisis. So extensive was the destruction of the parts anterior to the prostate gland that it was impossible to discover an orifice, and to relieve the bladder in that way: in order, therefore, to give him a chance, it was deemed necessary to tap the bladder above the pubis with a trocar, by which nearly two pints of urine were taken off. A gum catheter was then introduced through the canula, and the canula was withdrawn.

"9 p.m. Complains of much pain in the back, has not the power of retaining stools, although he feels them passing. Pulse 98. Skin and tongue moist; has some thirst. Ordered lemonade.

"12th.—9 a.m. Has not had any sleep during the night; has passed a pint of urine by the tube; wound looks well; tumefaction of penis and scrotum much less, and the colour not so dark. Pulse 100. Belly soft; no pain upon pressure; slight pain shooting through the bladder occasionally; no headache; fell asleep in a few minutes after he had been made comfortable. Ordered cool drinks and quietness.

"8½ p.m. Slept but a very short time; feels easy; passed about three gills of urine by the catheter. Pulse 90, and full; no pain on pressure; blood oozing from the wound. Penis and scrotum less swelled and discoloured; no general disturbance of the system.

Pergat.

"13th.—9 a.m. Bowels not open since operation; has

had some sleep during the night. Pulse 90. Tongue white; urine high coloured, with deposit when cold.

Olei Ricini, ℥ss.

"8 p.m. No unfavorable symptoms. Pulse 98. Oil operated once slightly.

"14th.—9 a.m. Complains of pains in his legs and back. Pulse 96. Tongue looks better. Bowels not open again.

Habeat Hydrargyri submuriatis, gr. v, statim.

"9 p.m. Bowels have been moved four or five times; has no power over the sphincter ani. Dressed the wound with pledget of lint.

"15th to 29th.—Visited daily at the usual hours. No change worth recording from day to day. Urine continues to flow through the tube. Replaced Catheter No. 6, having withdrawn the one first introduced.

"August 6th.—Withdrew the catheter, as urine occasionally passes through the wound in the perinæum.

"9th.—Since the tube was withdrawn the urine has passed more freely through the wound, and he has the power of retaining it for two or three hours.

"14th.—Wound above pubis quite healed: general health very good.

"October 8th.—It is unnecessary to detail the case further. The above abstract is given at the request of Scott, who has been discharged this day to proceed to sea.

(Signed) "J. Boyd, M.D., &c.,
"Phys. and Surg. Prov. Mar. Hosp."

In considering how these cases were to be remedied, I felt great reluctance to adopt the usual operation, for the reasons which have been mentioned, and thought of another plan that promised to be more satisfactory, both in the performance and in the result. This was to introduce into the bladder through the fistulous opening—which, if necessary, might be dilated—a staff like that used in lithotomy, but with the groove on its concave instead of its convex

side; then to insinuate through the urethra, so far as possible, the guide director employed for dividing strictures by external incision; and while the staff, confided to an assistant, was supported by a finger of the operator on the perinæum or in the rectum, to push the director onwards in the direction it ought to take if the canal were free, so as to pass through the obstructing texture, enter the groove, and proceed into the bladder. The state of matters being then similar to that of a stricture requiring division, after the director has been passed through it, there would be no difficulty in placing a knife in the groove and cutting outwards, so as to divide completely, in the exact line of the urethra, all the thickened substance concerned, and afford free admission to a full-sized catheter, which may be allowed to remain for two or three days to prevent any risk of extravasation. When it is necessary thus to reform completely a portion of the urethra, it would be unreasonable to expect a result equally speedy and satisfactory as when the natural canal merely requires to be enlarged. But I venture to hope that the plan of operating which has now been described may facilitate the procedure, and lessen the risk of bad consequences.

CASE

OF

DOUBLE TALIPES VARUS

IN WHICH THE CUBOID BONE WAS PARTIALLY REMOVED FROM THE LEFT FOOT.

BY

SAMUEL SOLLY, F.R.S.

Received Jan. 9th.—Read April 28th, 1857.

Firmin Santa Maria, æt. 21, a native of Medillin in New Granada, South America, came under my care in the beginning of June, 1852, afflicted with Talipes varus of both feet. He was a stout, muscular man, of lymphatic temperament, difficult of control, and peculiarly sensitive to pain.

The condition of the feet at that time afforded a perfect specimen of this deformity in its worst form, though both feet were not equally misshapen. The left was shorter and rather more inverted than the right, nor could it be so easily turned or moved towards its natural position. There was an entire absence of calf in both legs. The gastrocnemii and other muscles were all imperfectly developed. The lower extremities presenting a striking contrast to the great muscular development of the trunk and superior limbs.

A cast was taken of the left foot at the time, but unfortunately none of the right.

June 7th, 1852.—I divided in both feet (the patient being under the influence of chloroform) the tendons of the tibialis anticus, posticus, flexor communis, and flexor longus pollicis, also the plantar fascia. Three days after this a shoe was applied that allowed the leg and sole of the foot to be on one plane, having a screw to raise the outer edge of the foot and another to depress the heel. This apparatus, though well padded, could not be used long, the feet becoming sore, and a simple foot-piece with a side bar was applied to the right foot, a straight splint to the left. This latter instrument produced so much benefit in a very short time, that I wished to apply it to both feet. My patient would not submit to it, as he found it would confine him entirely to bed, whereas with the foot-piece he was able to get up and down stairs.

August 10th.—The tendons were again divided in the left foot, for this had improved but slowly, while the right had made considerable progress.

October 16th.—The tendency of the toes to turn inwards not being corrected sufficiently, I used an apparatus having leg and thigh pieces, and on—

November 3d—A new foot-piece was added, by which the foot could be straightened on itself.

December 25th.—The condition of the feet showed improvement in the right, but not the left, although I had used the same means for both.

At this time I employed a pair of instruments, each one consisting of a strong metal shoe, padded and having side pieces for securing the heel, and to which were attached three straps, two of which passed over the front of the instep, and the other included the ankle-joint above the malleoli; in the sole of the foot and as nearly as possible beneath the articulation of the astragalus and scaphoid, was a centre governed by an endless screw, which was for the purpose of exercising lateral force upon the bones of the foot anterior to the astragalus; on the external side of the heel-piece a bar was fixed, having two racks and pinion-

joints, and below this was a horizontal bar with a broad strap for the toes; a calf hand and straps completed the apparatus.

January, 1853.—I divided some tendons in the right foot, and also two or three in the left; but having taken no notes at the time, and speaking from memory, I am unable to state the precise number.

March.—The left foot still resisted the treatment employed, Dr. Little then saw the case, and advised the same treatment to be persevered in. At this time a simple straight wooden splint was applied to the side of the leg and thigh, extending from the malleolus as far as the trochanter, to which the foot was firmly bound in as nearly a straight direction as possible, and considerable advantage was derived from this mode of treatment. It was at this consultation that Dr. Little first suggested to me the removal of the cuboid, to which I replied that this very plan had passed through my mind, but that I was afraid of the consequences, though his opinion would have great influence with me, from his immense experience in the difficulties which attend the cure of adult and extreme cases of deformity.

The patient had never borne the instrument well, never entirely submitting to the pressure that was exerted by a proper adjustment of the screws, seizing on all occasions an opportunity of loosening the straps, so that satisfactory proof was wanting that the pressure applied had been retained for any length of time; and to this want of perseverance I feel justified in attributing the slow progress which the left foot made.

June 11th, 1854.—I determined to adopt Dr. Little's suggestion, and to remove the cuboid bone, which seemed to be a bar to the ultimate success of the case. My patient was placed under the influence of chloroform, and in presence of Dr. Little and Mr. William Adams, I made a free incision over the cuboid. I cut out a wedge-shaped piece from its centre by means of a sharp gouge, without opening any articulation. As this did not produce much effect, I removed more of the bone, cutting quite through it, opening the articulation with the metatarsal bone of the

little toe, but not that with the os calcis. This proceeding completely effected my object, and I could bend the foot beyond the mesial line, in the outward direction. I then requested Dr. Little to do the same, and having put my finger into the chasm I had made, was surprised in finding my finger pinched so sharply that I was obliged to request the doctor to desist till I removed it.

From this fact it was clear that if the mechanical apparatus could have been then and there applied, and the foot retained in this amended position, the cure would have been completed with the healing of the wound. Having, however, to wait three weeks before pressure could be applied, and then only at intervals, most of the advantage expected to be derived from the excision was lost. This appears to me one of the greatest objections to its performance. If the operation should, from any peculiar circumstances, as in the present case, be again deemed advisable, I do not recommend the plan of gouging away the bone, as adopted in this instance. I should advise the removal of the whole bone, for although an incision into the numerous joints which unite it to the rest of the tarsus is a formidable proceeding, the effect of the operation so performed will be more permanent. The very reason which induces me to advocate the use of the gouge instead of the knife in the removal of carious bone renders this proceeding, in the case of deformity, objectionable. The bone left in either case reproduces new tissue nearly equivalent in bulk to that removed. In the case of disease this reparation is desirable; but in that of deformity I need hardly say it interferes with the object of the excision.

Very little blood was lost during the operation; the wound was brought together with sutures and strapping. Ice was ordered to be applied in the event of hæmorrhage. No constitutional disturbance followed, the wound healed up in fourteen days; but unfortunately there remained so much tenderness, increased by the peculiar temperament of my patient, as already adverted to, that it was found impossible to place any apparatus on the foot for the next

week. At the end of this time the foot was far less pliant than immediately after the operation, though the direction was improved; it was not so much curved.

From this time the foot gradually though slowly improved, and the sole could now be placed flat on the ground, and my patient could bear the weight of his body on it, and walk with the help of a stick. Up to November, 1854, the same apparatus had been used as has been described above; I then employed a metal shoe without any division in the sole, and instead of the lateral rack and pinion stem, a slight lever terminating at the ankle-joint by a half circle of metal connecting the lateral stem with a joint at the back of the heel, the combined action of which created a torsional force acting upon the foot.

December 28th. — I divided the tendons of the tibialis posticus and flexor communis digitorum, as they still offered some resistance in placing the foot on the apparatus. Since then I have relied on the instruments to complete the cure, though very much annoyed by the conduct of my patient. His present condition must be judged of by the accompanying casts, which demonstrate that the soles of both feet are fairly on the ground. They are still increasing in length, and the deformity nearly removed.

With regard to the effect produced in this case by the removal of the cuboid bone, I do not consider it is such as to encourage the profession to perform the operation except in some few old and obstinate cases that have resisted every other treatment. I believe that if this gentleman had been in the hospital, where he would not have been permitted to do as he liked—loosening the straps and unfastening the locks—that he might have been cured without any excision of the bone. Nevertheless, in his peculiar case I believe that the operation has been of the greatest value, inasmuch as, having become tired of restraint, he had determined to return to his native country uncured, but the idea of an operation by which he would be cured more rapidly, encouraged him to remain and persevere. After its performance he was much more amenable to treatment,

and there can be no doubt of its having materially expedited his cure.

In confirmation of what I have said regarding my difficulties in this case, I must quote the following from a letter of my patient's, sent just before he left England. The whole letter accompanies the paper.

"In justice to yourself, I must say that I now feel much vexed and ashamed that I was not two years ago as I am now, which I might have been if I had had the energy to have carried out fully all your valuable directions."

ON

FORCIBLE EXTENSION AND RUPTURE OF THE UNITING MEDIUM

OF PARTIALLY

ANKYLOSED SURFACES.

BY

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ASSISTANT-SURGEON TO THE ROYAL ORTHOPÆDIC HOSPITAL.

Received Jan. 27th.—Read March 24th, 1857.

Resection of the articular extremities of bones is said to be among the greatest triumphs of modern surgery; and when it is performed under certain restrictions, and as a substitute for a more formidable operation, it may doubtless claim to be so considered. But the excision of articular surfaces is at present of so frequent occurrence, and is undertaken not solely as a substitute for amputation, but is performed where amputation would never be thought of, that I beg to call the attention of the Society to the forcible rupture of partially ankylosed surfaces in cases where active disease has subsided, the operation being both less hazardous and more efficient than resection. For the sake of illustration, I have selected three cases of partial anky-

losis of the knee, in which the uniting medium was ruptured and the use of the limb restored; cases entirely analagous to three other cases, in which I have lately witnessed resection of the articular surfaces, so that, without absolute comparison, I might present to the Society cases in every respect similar to others in which resection has been performed. I have also added four cases of partial ankylosis of the hip-joint, in which rupture of the uniting medium was successfully performed, as well as a single case of partial ankylosis of the elbow. The mode of treatment usually adopted for the removal of contraction and partial ankylosis is either gradual extension after the division of tendons, or extension without the division of tendons when these are not so tense as to interfere with the extending process. In all cases of partial ankylosis, some advantage may be derived from gradual extension; that is to say, the amount of contraction may, in all cases, be somewhat diminished by gradual extension; and where the adhesions are soft, extension thus employed may be sufficient entirely to overcome contraction. But there remains a large number of instances in which gradual extension is wholly insufficient to overcome contraction.

The advantage of a partial restoration of the articular surfaces, or of partially overcoming contraction, leaving the limb in an imperfect state of extension and with no available motion of the joint, is inconsiderable and oftentimes questionable. I will endeavour to show that, where the adhesions constituting partial ankylosis, cannot be overcome by gradual extension, they may with safety be ruptured by forcible flexion and extension of the limb.

Dieffenbach was the first who had recourse to subcutaneous sections of tendons and fasciæ and forcible rupture of adhesions between articular surfaces. He ruptured the adhesions immediately after having divided the tendons, whilst consequently the wounds were open. Not only were these wounds made to gape, but they became starting points for extensive lacerations of the integument. Some of his operations were followed by violent inflammation and exten-

sive suppuration, which compelled him to have recourse to amputation; and some were followed by fatal results.

Louvrier, desiring to remove contractions, and overcome partial ankylosis without wounding the skin (thus to retain the comparatively innocent character of subcutaneous injuries), invented a machine with which he hoped to effect this purpose. His first five operations were successful; but subsequently, in Paris, in 1839, some of his operations were attended with fatal results. In one instance, the integuments of the popliteal fossa were ruptured, and the flexor muscles of the leg were lacerated; suppuration ensued and death. In a second case the popliteal artery was ruptured; and in a third instance the femur was fractured, both of which cases terminated fatally.

In 1841, Auguste Bérard made his report relative to the forcible rupture of ankyloses, to the Academy of Medicine; and this mode of treatment was in consequence abandoned in Paris. But Palasciano (of Naples) again drew attention to the subject, and advocated this mode of treatment so successfully, in 1847, that he found many followers, as Bonnet, Langenbeck, and others. Also at this time, the inhalation of ether enabled these violent operations to be performed without exciting excruciating pain, such as former operators were unable to avoid. Now, manual force was alone employed, and found to be sufficient to overcome contractions and ankyloses, flexion and extension being made without instrumental aid. But Palasciano further recommended the section of the triceps extensor cruris, as well as the tendon of the biceps; after which, forcible flexion and extension were to be instituted to break down the adhesions.

In 1850, Langenbeck recommended the forcible rupture of adhesions after division of the tense fasciæ; and he taught that it was alone necessary to divide the fasciæ, for that, under the influence of chloroform, the muscles became so sufficiently relaxed that section of their tendons was unnecessary.

Buehring, in Berlin, also adopted the same mode of

treatment. But this was also found to be liable to accidents of a serious nature, namely, to dislocations. The connecting bands were indeed ruptured on flexing and extending the limb; but the head of the bone was then not unfrequently drawn away from the articulation through the action of the more powerful muscles, especially when a tendency to dislocation existed.

Such, then, are the modes of treatment which have been hitherto employed to overcome contractions and partially ankylosed surfaces.

Before I relate the cases which I have now to bring before the Society, I will, in a few words, explain the treatment which I have adopted.

In the foregoing recital it will be observed that the errors in the various modes of treatment were, the open wound of Dieffenbach; the immoderate force employed by Louvrier; and the extension without division of tendons, as practised by Langenbeck and others. My aim has been to gain the desired results without exposing the patient to what I deem to be errors of treatment. I have, therefore, commenced by dividing subcutaneously those tendons which were likely to interfere with the extending process; the limb was then bandaged and reunion was promoted. When the punctures had healed, namely, from the sixth to the eighth day, the patient was placed under the influence of chloroform, and the adhesions were ruptured by flexing and again extending the limb.

Rupture of the adhesions was effected in the following manner. Having grasped the thigh immediately above the knee firmly with both hands, an assistant would grasp the leg above the ankle, and forcibly flex the leg upon the thigh, and again extend the limb; and these movements of flexion and extension were repeated until the adhesions were entirely broken through. Having command of the femur, I could at will increase or diminish the power in the hands of my assistant by raising or depressing the knee, as the tension of the skin might be great or otherwise.

The limb, after being fully extended, was bandaged, it was then placed in a trough-splint, and was subsequently again flexed almost to the same angle as before the operation. In the course of two or three days gradual extension was commenced and continued until the normal degree of extension was obtained. After extension was complete, passive motion of the joint was induced, the patient being under the influence of chloroform; and motion was continued daily, or at intervals of two or three days, until such power of motion as was possible was gained.

Case I.—J. N—, æt. 14, of healthy appearance, dark complexion, and a spare habit of body, was attacked when five years of age, on recovery from scarlatina, with inflammation about the knee-joint, which resulted in abscess. The knee became contracted, as I found it, nearly at a right angle, so that the toes remained raised some inches above the ground. The skin around the joint was covered with cicatrices, subluxation of the tibia backwards existed, and the leg was much atrophied. There was very slight (scarcely appreciable) motion at the knee-joint.

July, 1855.—I divided the tendons of the biceps, the semitendinosus, and the semimembranosus muscles, all of which were very tense; and when the punctures had healed, chloroform was administered by Dr. Snow, and, with the assistance of Dr. Dick, I ruptured the old fibrous adhesions which interfered with the motions of the joint.

Flexion and extension were made in the manner already described, when the adhesions yielded suddenly with a tearing sensation. The skin was bound by adhesions to the ligamentum patellæ and to the tibia below this point, and in consequence the tension of the skin became very considerable on flexing the limb. I, therefore, determined not to endeavour to further overcome the subluxation at this time, but to trust to a very complete apparatus which had been constructed by Mr. Bigg for this purpose. The limb was bandaged and placed in this apparatus; it was then flexed, and the head of the tibia was gradually raised to its

normal position. At the same time the limb was extended gradually; and flexion and extension were made alternately, without removing the limb from the apparatus, during four weeks. Passive motion, by means of pulleys, was then commenced, the thigh being supported on a portion of a double inclined plane, and the head of the tibia by an elastic pad. The subluxation was entirely removed, and there remained considerable power of flexion and extension of the limb. During four months these movements of the limb were continued, at the end of which time he could walk about the house without support. During eight years he had only been able to walk with the aid of a crutch; but now this support was unnecessary, except when he left the house. He left London in October, and in December he had thrown aside his crutch, and was able during this month to carry a gun for some hours on a Scotch moor, which experiment he repeated two or three times during the month, and happily without any untoward result.

Case 2.—Mrs. W—, æt. 42, was attacked, after the birth of her last child, namely, in 1846, with phlegmasia dolens; abscesses formed around the knee-joint, and inflammatory retraction of the flexor muscles of the leg and of the fasciæ about the joint took place, adhesions were also formed, constituting angular false ankylosis, together with subluxation of the tibia backwards.

February, 1856.—The knee was bent at a right angle; the toes were raised eight inches from the ground; numerous cicatrices were situated about the knee-joint; the flexor muscles of the leg were very tensely retracted; there was just perceptible motion at the knee-joint. The patient had worn during several years a shoe, which supplied the deficient length of the limb, and enabled her to move about with a crutch. This shoe, however, had held the foot permanently extended, and had thus occasioned retraction of the muscles of the calf of the leg, or talipes equinus. With the assistance of Mr. Robinson, I divided the tendons of the biceps and of the semimembranosus and semitendinosus

muscles, as well as the portions of fascia which were most thickened. When the punctures had healed, I endeavoured to make gradual extension, but soon discovered that the adhesions were too dense to yield to such force as I could apply gradually; so, having administered chloroform, I proceeded to rupture the adhesions by forcible flexion and extension of the limb.

The adhesions yielded gradually with a tearing sensation, and motion was then increased until the limb could be perfectly extended. The subluxation was at the same time entirely removed. The limb was then bandaged and placed in a trough-splint, having a rack and pinion-joint corresponding to the knee. Having been well secured in this splint, the limb was again flexed to about half the extent of its former degree of flexion.

Considerable pain was experienced an hour after the operation, to allay which an opiate was administered, cold was applied to the knee, and the extension of the limb was again slightly diminished.

Acute pain was never complained of after this time; no swelling of the knee occurred, neither was there a blush of inflammation. Extension was carried on gradually until the limb was again fully extended. Passive motion was then commenced; at first, very slight movements could alone be borne, and these were subsequently increased until a tolerable range of motion was gained.

Later, the tendo Achillis was divided, and the sole of the foot was ultimately brought into contact with the ground; so that the patient was able to walk firmly. There was no shortening of the limb; and, although voluntary motion was only in part restored, the patient could move about comfortably, and without her crutch. The treatment occupied five months.

Case 3.—M. B—, æt. 17, June, 1856, had suffered twelve months previously from rheumatic inflammation of the knee-joint; abscess resulted; a flexed position of the knee was assumed; retraction of the flexor muscles of the

leg followed, and immobility of the joint, in this flexed position. The limb was bent at a right angle, and was somewhat atrophied; the hamstring muscles, and especially the biceps, were tense; slight subluxation of the tibia backwards, and false ankylosis with the least perceptible motion of the knee-joint existed.

The patient was a healthy-looking and robust girl; she could only move about with crutches, and seldom left the house.

With the assistance of Mr. Robinson, I divided the tendons of the biceps, the semitendinosus and the semimembranosus muscles; and when the punctures had healed, chloroform having been inhaled, I flexed and extended the leg upon the thigh until motion was perfectly free, extension of the limb was complete, and subluxation was overcome. The adhesions yielded on the application of moderate force with a snap, and subsequently with a tearing sensation. The limb was bandaged, and placed in the extended position in a trough-splint; and having been well secured, it was again flexed to nearly its former position, by means of the cogged wheel situated against the knee.

No pain, except on motion, was felt, and there was scarcely tenderness about the joint. Cold was applied, and at night an opiate was given. The first night the patient was restless, and awoke in pain; this pain, however, soon subsided on the application of cold, and never recurred. On the fourth day, extension of the limb was commenced, it was carried gradually to its full extent, and was complete during the third week. Passive motion was then instituted, and in the course of some few days the articulation could be moved with considerable freedom and without pain. At the end of two months the patient could walk about her room, bearing her weight on the limb, and slightly using the joint. Improvement went on slowly after this time, and much rigidity about the articulation remained, yet considerable motion of the knee was obtained. In the following November, namely, five months after the operation, the patient could walk some steps without support, and without pain in the knee. The limb was daily gaining strength.

Case 4.—E. B., æt. 8. When she was five years of age was attacked with rheumatic inflammation of the hip-joint, after sitting on a cold, damp seat; abscess formed, connected with the joint, and a fistulous opening remained; the thigh became flexed upon the pelvis, and to such an extent that the heel was raised one foot and a half from the ground, and adhesions formed preventing the motions of the joint.

On grasping the thigh and the pelvis firmly, in order to endeavour to produce motion, it was evident that ankylosis was not complete, but that the adhesions were fibrous. There was just perceptible motion of the limb on making a very careful examination. These adhesions were ruptured, August, 1854, by suddenly flexing and again slightly extending the thigh; and muscular contraction was subsequently overcome by gradual extension of the limb. During this period, and whilst extension was being accomplished, passive motion was made from time to time, and the head of the femur was moved in the acetabulum. Before extension was complete, the fistulous opening had closed. At length muscular contraction was entirely overcome; passive motion was then employed, and gradually increased, until the normal range of motion was gained. Some pain was induced by the first attempts at passive motion; but this lasted scarcely longer than the time during which motion was employed, and after some few days, pain was no longer experienced.

In the course of three months, the child had the power to flex and extend the limb partially and slowly, and this power increased rapidly. Five months later she could walk about without pain or fatigue, using a stick for support. There was shortening of the limb to the extent of half an inch, which deficiency required to be supplied by a thick sole to the boot.

Nearly twelve months after I first saw my patient, namely, in July, 1855, her father wrote to me that she usually walked three or four miles in the course of the day, without other support than a stick. And, moreover, he

added that in the immediate neighbourhood of the house she no longer used her stick.

Before coming to London, she had only walked with crutches. Her figure was stunted, and her health was extremely delicate.

At Christmas, 1855, the child had grown much, and was robust and active; and the motion of the hip was scarcely less than was that of the sound limb.

CASE 5.—L. S., æt. 13, March, 1856, of a strumous diathesis, was attacked with inflammation of the hip-joint three years ago. She was attended by a gentleman in the neighbourhood of Wandsworth, who adopted such means as were most judicious to arrest inflammation; yet it progressed. Subsequently she became an in-patient at a London hospital, where she remained three months. After leaving the hospital, she came under the care of another hospital surgeon.

When I saw her, in March, the right buttock was flattened; the muscles of the limb were wasted; the pelvis was oblique, and so much inclined that, standing upright, the toes of the right foot alone touched the ground, the heel being drawn up. There was no shortening of the limb. The spine was curved considerably towards the left side. The hip-joint was motionless. There was neither pain in the hip nor in the knee. Pain had been excessive, even to prevent sleep; but it had entirely ceased for four months.

Having fixed the pelvis, I attempted to flex the thigh, but found that the adhesions were too firm to yield to any pressure that I could employ, when applied gradually. I therefore endeavoured by a series of jerks to break through the adhesions. They yielded slowly, imparting to the hand a sensation of tearing. Then I flexed and again extended the limb. Having previously formed a gutta-percha splint, I applied it to keep the joint at rest in the same position as before the operation. The limb was then bandaged. No inflammation was excited, and very little pain was felt after the operation. The limb remained at rest, and the ban-

dages were not removed for eight days; at the expiration of which time passive motion was instituted; at first, gently and to a slight extent only; but it was gradually increased until the limb could be perfectly flexed and extended.

Three months after the rupture of the adhesions, there was considerable power of voluntary motion; the obliquity of the pelvis was in great measure overcome, and the sole of the foot was in contact with the ground. The patient could walk about the house supported by a crutch. Two months later, namely, in August, the limb could be flexed and extended without assistance, though not to the full extent; the obliquity of the pelvis was entirely overcome, and the curvature of the spine was at this time almost removed; the sole of the foot was in perfect contact with the ground, and the foot could be well flexed in walking.

In October some weakness of the limb still remained, so that a stick was still used for support; the buttock, however, was fuller and firmer, and the motions of the thigh were easy and painless, and with very slight effort they could be carried to the full extent of normal motion.

In December she walked well with a stick, and with only a slight degree of apparent weakness.

Partial Ankylosis of the Hip-joint.

Case 6.—F. C. æt. 25, an officer in the Royal Artillery, suffered when in Ceylon, in 1855, from rheumatism. Several joints were affected, but especially the left hip was inflamed. He suffered during several months, and at length it was discovered that the motion of the hip-joint was lost. I first saw him in January, 1857. I found both lower extremities of the same length; the head of the femur occupying the cotyloid cavity; the glutæi muscles of the left side much flattened, and no power of flexion or extension of the limb, nor other motion than a slight, just appreciable, lateral motion of the hip. After examining the limb I had no doubt that the adhesions were fibrous. I therefore recommended that they should be ruptured. He was, however, at that time under orders to proceed with troops to Canton,

and the operation was therefore postponed until his return. He embarked during the following week, and would have sailed on the morrow, when orders were received to detain the vessel for three weeks. He immediately returned to London, and having obtained leave of absence, he determined, with Dr. Wood and myself, that an attempt should be made to regain the motion of the joint.

January 24th.—Chloroform was administered by Dr. Snow, and there were present at the operation Drs. Wood and Partridge and Mr. William Pile.

When the muscles were perfectly relaxed, I fixed the pelvis with one hand, and with the other attempted to flex the thigh, which I succeeded in doing after jerking the limb, without using much force, several times. The adhesions yielded gradually, and without a snap or any distinct sensation of tearing. And as soon as resistance was found to have been overcome, a gutta-percha splint, which had been previously shaped, was applied, and no further motion of the limb was permitted. On recovery from the effects of chloroform, my patient was not easily assured that the adhesions had been ruptured. He felt no pain; but slept well during the night without an opiate. He remained quiet in bed during the four following days; at the end of which time the splint was removed, and gentle movements of flexion and extension were made. These motions did not cause pain, or it was so slight that it ceased as the motion ceased. The splint was reapplied and worn for two more days, when it was left off entirely. During this time he walked about the room, and now motion was imparted to the limb every day; at first with the hand, the ankle being grasped, and afterwards more force was used by means of ropes and pulleys, to remove the muscular tension and retraction. At first a stick was used for support in walking; but this was soon thrown aside, for he walked as firmly as he had ever walked, without a halt in his gait, and with great comfort to himself. It is now six weeks since the operation was done. The motion of the joint is not yet perfect; but it is so considerable that the limb can

be extended as much as the other limb; it can be abducted to within one inch of the motion of the other limb, and it can be flexed beyond a right angle.

Partial Ankylosis of the Hip-joint.

Case 7.—H. C—, æt. 21, November, 1856. When nine years old, he was attacked, after exposure to cold, with inflammation of the left hip. Great effusion around the joint, with excessive pain, followed, and lasted many months, when a stiff joint resulted. When I saw him, in November, 1856, the limb was much atrophied; the glutæi muscles especially were much wasted; the limb was one inch shorter than the other; the head of the bone occupied the cotyloid cavity; there was not appreciable motion at the hip-joint. From the sensation which was communicated to the hand, however, I believed that the adhesions were fibrous, and that they might be ruptured. I therefore advised that chloroform should be administered, and that an attempt should then be made to separate the adhesions.

November 20th.—Chloroform was administered by Dr. Gibb. When the muscles were perfectly relaxed, the pelvis was fixed by Dr. Trouncer, and I attempted to flex the thigh upon the pelvis. With a very slight effort, the adhesions snapped audibly, and the motions of flexion and extension were immediately free. A gutta-percha splint was then applied to keep the joint at rest. Very slight pain succeeded the operation, and in the evening he was entirely free from pain. He slept well during the night. On the third day the splint was removed, and slight motion was given to the limb. This was done without pain. No inflammation followed the operation; but each day the motion of the joint became more free. After ten days, more forcible extension, by means of ropes and pulleys, was employed to overcome muscular retraction and to gain the free use of the joint. One month after the rupture of the adhesions, the thigh could unassisted be raised beyond a right angle with the pelvis. And in January he walked freely, with a raised sole to his boot, and with the assistance

of a stick. My patient now expresses strongly his sense of the pleasure which he derives from being able to move the limb at the hip-joint and of being able to walk without the necessity of moving the trunk simultaneously with the thigh and without the intervention of the joint, as he was formerly compelled to move.

Case 8.—S. D—, æt. 8, November, 1856. When three years old, he was jerked up from the ground by his nurse, who held him by the forearm. Inflammation of the elbow followed, and the joint became perfectly stiff and immovable.

The arm was flexed at an obtuse angle, the hand being in a semiprone position; there was no motion at the elbow, nor was there any movement of the radius. The muscles of the limb were shrunken. The boy was strong and healthy, and of a sanguineous temperament. Although there was no motion at the elbow, neither muscular tension, nor the slightest perceptible motion under chloroform, yet it was not difficult to assert that the union was not bony, but that it was of a softer and more yielding character.

When chloroform had been administered, I attempted to flex and extend the arm, and soon gained slight motion, which rapidly increased without any sensation of tearing, but with a gradual loosening of the structures around the joint, until flexion and extension were perfect. I was not able to rotate the radius. A wet bandage was applied, and the arm was encased in an apparatus, which was movable at the elbow with a rack and pinion joint, for flexion and extension; it also had a movement to effect rotation of the radius. The arm was held at the same angle as before the operation.

On the following day, November 23d, the elbow was slightly tender to the touch, but otherwise painless. The boy had suffered an inconsiderable amount of pain after the operation; all pain was removed on the application of cold. He slept well throughout the night without an opiate.

November 24th.—I moved the forearm upon the arm

without exciting pain, and continued these movements on alternate days, for a minute or two each time, until November 29th, when I again placed him under the influence of chloroform. I could now rotate the radius perfectly. The adhesions yielded suddenly and completely, without the application of much force. The limb was again encased as before, and cold was applied to relieve heat and pain. No inflammation occurred, and the elbow was only very slightly tender on pressure. Every other day the motions of flexion and extension and of rotation of the radius were continued, and were gradually increased from slight movements, until the limb could be nearly perfectly extended, and perfectly flexed.

January 19, 1857.—He had some power of voluntary motion, and, without the apparatus, the arm could be flexed and extended to more than half of its normal extent of motion, without force and without pain.

Such, then, is the mode of treatment which I have adopted in these cases. Where the muscles were retracted so as to prevent flexion and extension, their tendons were in the first instance divided, together with such portions of fascia as might interfere with the extending process; and the punctures having healed, the adhesions were ruptured by force, more or less suddenly applied, in the directions of flexion and extension.

The punctures being allowed to heal before extension is made, the subsequent injuries bear the innocent character of subcutaneous wounds. And also, the tendons being divided before extension is made, luxations are avoided. The advantage of manual power is so evident in the treatment of these cases that I conceive instrumental force (such, for instance, as was used by Louvrier) should never be employed. For not only is the operator able to adjust this force to the requirements of the case (and he has sufficient for every form of false ankylosis, and, indeed, to break through bony adhesions), but he may modify it by using gradual pressure, or a series of jerks, or a suddenly imposed force, as may appear most appropriate at the time

of operation. Furthermore, the integuments are much less likely to suffer, and the deeper structures to be bruised than when instrumental force, other than the hand, is employed. And, when contractions are complicated with cicatrices, as frequently happens, undue tension of the skin will require the strictest attention of the operator, that laceration may not occur. Also, it should be borne in mind that the integument is more easily ruptured where inflammation has existed, and where cicatrices have formed, than when it retains its normal extensibility. When, under these circumstances, the tension of the skin is great, it is prudent to diminish the extending force in that direction at least, and even to complete the breaking down of the adhesions on a future occasion, rather than to endanger the success of the operation by the smallest rent in the integuments.

Partial luxation of the tibia frequently exists together with contraction of the limb. The head of the tibia is then held in close and forcible apposition with the condyles of the femur, from which caries may probably result. Extension of the limb, and restoration of the articular surfaces to their relative normal positions, is effected in these cases with the greatest advantage.

According to Langenbeck, necrosis of a portion of an epiphysis should not deter from the employment of forcible rupture of false ankylosis. It need scarcely be said, however, that when disease of the epiphysis is known to exist, more than ordinary care should be taken, lest, in endeavouring to rupture the tough adhesions, the bone should be fractured.

Thus I have endeavoured to show that forcible rupture of partially ankylosed surfaces may be safely and advantageously undertaken. The operation is less hazardous than resection of the articular surfaces, and the results of the operation are infinitely superior to those which are obtained after resection.

ON

SCIRRHUS OF THE MALE BREAST.

BY

J. L. MILTON, ESQ.

COMMUNICATED BY

JOHN SIMON ESQ, F.R.S., &c.

Received Feb. 7th.—Read April 28th, 1857.

In the following pages no attempt has been made to elucidate the pathology and causes of cancer; all that has been aimed at was to bring into a focus some few of the scattered rays of light which modern literature has thrown out. The subject of cancer in the male breast has hitherto not attracted much attention, owing possibly to the close resemblance the disease bears to scirrhus in the female, in whom opportunities abound for studying it in all its forms. I have consequently learned but little from books; and though more diligent search might have yielded more satisfactory results, yet when writings, professedly devoted to the subject, are so barren, the benefit likely to accrue from searching through the mass of general literature seems very doubtful.

The Transactions of this Society contain two cases. One was communicated by Mr. Lawrence,[1] which, from the

[1] 'Medico-Chirurgical Transactions,' vol. iii, p. 72.

description, can scarcely be pronounced genuine scirrhus, for we are told that, after ulceration was established, a fungus shot up, one considerable protuberance of which was nearly smooth and florid; the rest was irregular and tuberculated, and covered mostly with an unhealthy cuticle. The discharge was not considerable, and rather offensive. The patient died from extension of the disease to the pleura, peritonæum, and other organs; the right pleura being so thickened and contracted as to have compressed the lung into a very small space. The patient was an Italian of the age of thirty-five, and about fifteen months elapsed between the first discovery of the disease and death.

The second[1] is a case which Mr. Travers met with, in a waggoner, æt. 58. The lump, which was in the left breast, was as large as an egg, of four years' standing, and never ulcerated, though a dark incrustation appeared on the breast within an areola of livid tubercles. Death occurred principally from extension of the disease to the lungs, which were found studded with hard tubercles, presenting on section a white medulla with a dark deposit in the centre. Of the appearance of the tumour, Mr. Travers says nothing; for I presume that when he observes that the enlarged glands were of a gristly texture, he refers to those in the axilla and above the clavicle. The tumour had shrunk a good deal before death, and, at the same time, small detached tubercles formed in the neighbourhood.[2]

Mr. Travers, however, says, "The above, it will be observed, is not the scirrhous tubercle, such as we meet with it in the female breast: nor can any analogy of structure be cited to explain the locality of the disease when it appears in the male breast, which is rare, and its situation probably fortuitous."

In the Museum of the College of Surgeons of London is a specimen (numbered 2791) described thus: "Section of the breast of a man in which there is a large ulcer, which

[1] 'Medico-Chirurgical Transactions,' vol. xvii, p. 320.

[2] Also reported in the 'Lancet,' 1826 and 1827, vol. i, pp. 267, 751.

probably originated in a lens-shaped, hard, cancerous, tumour or degeneration of the skin and mammary gland. The outline of the ulcer is nearly circular, but somewhat sinuous. It is a smooth, slightly convex, elevated surface, with some hard nodules at its margin, which are round, slightly elevated, flattened, and depressed at their centres. The ulcerated surface is nearly five inches in diameter, and appears to have been very vascular. The substance immediately below it is soft; but that at a greater depth is compact and hard. The lower surface of the diseased structure adheres to the great pectoral muscle, in which some of the large and tortuous arteries are injected."

Mr. Quekett considers it doubtful whether this was a case of genuine scirrhus, and, if I am not mistaken, Mr. Paget coincides with him. Its extraordinary size and great vascularity seem to favour this view; but the form of its outline and the presence of nodules in its vicinity give it a strong resemblance to the case which forms the basis of this paper, and which was pronounced to be undoubtedly scirrhus by Mr. Quekett himself. Unless the college preparation be fungoid, I am at a loss to know what disease could have produced such an excavation. The history of the case is not given, and I cannot find any mention of it in Sir Astley Cooper's works, from whose museum it was taken.

As the preparation which is now before the Society has been presented to the College of Surgeons, it will, perhaps, harmonize best with the plan of this essay if the history of the case is given here.

The patient, Joseph W., applied to me, March 28th, 1856, with well-marked open cancer of the left breast. He was fifty-eight years of age, and so far as his recollection served him, he had never suffered from any illness. He had during great part of his life been very intemperate; but had never contracted any venereal disease. He had been married many years, and was the father of nine children, one of whom died of "water on the brain," the re-

maining eight were alive and healthy. He lived in a confined court in the City-Road, and was by trade a brass-finisher, which compelled him at times to bear with considerable force on the left side of the chest just below the nipple. To this circumstance he himself attributed his complaint, and he thought that from being obliged to continue his employment for some time after the affection showed itself, he had not enjoyed a fair chance of recovery, as pressure always produced some aching pain. He was a short, strongly-made man, but had of late begun to look haggard.

About ten months previous to his first visit to me, he had noticed a small, hard nodule like a pea, immediately under the left nipple. The skin over it neither projected, nor was discoloured. He told me it gave him no pain; but his wife always maintained that he used to complain at this time of a dull aching pain. About four months after, finding that the tumour steadily increased in size, he went to a "doctress," who gave him hemlock to take, hemlock poultices to apply, and hemlock leaves to lay on the swelling, under the use of which it slowly reached the size of a walnut. Then the nipple sloughed off, a little before Christmas, and a deep sore formed, which steadily increased in size up to the time of his coming to me.

On examination I found a large cup-shaped cavity, the base of which was covered with a thick, tenacious, greenish secretion dotted with black. From the boundaries of this to the edges, the surface was most delicately marked with numerous slender vessels, evidently carrying arterial blood, running parallel and converging towards a common centre. The edges were thick and livid, but not everted. Where the skin ceased, a delicate line of pale-blueish cuticle, such as is seen at the edge of an ulcer in the process of healing, was observed. The surrounding skin and cellular tissue were extremely hard. In the vicinity enlarged cutaneous veins were noticed.

Just below was a smaller but precisely similar kind of ulcer. To the right of this was seen a purple, flat, slightly

elevated sore, very like a condyloma, around which lay several scattered pea-like tubercles. The ulcer was not offensive and discharged a moderate amount of sanious fluid. It occasionally bled very slightly, which seemed chiefly attributable to the dressings having become dry and adherent. He complained little of pain, nor was any uneasiness felt when the lump was handled; the surface of the ulcer seemed almost callous. One gland in the axilla was a good deal enlarged; the opposite mammary gland was somewhat indurated. In both groins the lymphatic glands were a little larger and harder than they ought to have been.

The patient stated that he had of late lost flesh and strength, and had great difficulty of breathing, so that he could not lie down well at night. On examining by the stethoscope, nothing was noticed beyond extreme feebleness of the breathing sound, which was interrupted by very long pauses. The chest on the left side was almost universally dull on percussion—each respiratory movement was attended with a heaving of the whole trunk. There was no expectoration beyond a little mucus. The pulse in both arms was small, and felt as though the blood were with difficulty propelled into the arteries. Nothing abnormal could be detected in the abdomen, though this cavity, especially around the kidneys, was attentively explored. The urine, however, was always brown, and quickly became fetid. Mr. J. Z. Laurence examined a specimen of it, and found it loaded with urate of ammonia. The bowels were rather costive; the appetite was pretty good.

It did not seem justifiable to attempt any operation, and the treatment was confined principally to the use of sedatives with the view of procuring sleep, from the want of which he suffered greatly; of tonics to maintain his strength, and mild, stimulating dressings to keep the ulcerated surface in as healthy a condition as possible. The sedatives, however, never produced the effect intended and ether was tried, the action of which so far improved his condition, that it was found avisable to allow a very free use of it.

The breathlessness rapidly increased, so that for the last fortnight of his life he never lay down to sleep. A choking sensation was felt on attempting to eat, which grew steadily worse. The left arm became extremely swollen, the pulse grew more feeble, and the patient's strength declined daily. The open sores remained as at first, but the tubercles became a little more prominent, and a hard fissure began to extend from the principal sore towards the axilla. He died on the 3d of May, exactly five weeks and a day from his first visit; the breathlessness during the last day or two being most painful to witness.

No post-mortem examination could be procured, but the breast was removed and placed in spirit within eighteen hours after death. The tumour was very slightly adherent to the pectoral muscle.

In the museum of St. Bartholomew's Hospital are two specimens of occult scirrhus. Mr. Paget was kind enough to place at my disposal his notes on these and three other cases, and from them the following description has been drawn. The first was removed from the breast of a man under Mr. Paget's care. The patient was forty-eight years old and of healthy aspect; he had first observed the disease six months previously, it had increased quickly, and had been painful for two months. It was removed by operation, from which the patient recovered; but the result was not ascertained. He lived in a healthy suburb of London, and seems to have been in easy circumstances.

It is a fine specimen of occult cancer, forming "an irregular rounded mass, nearly two inches in diameter. It is extremely hard, pale greyish, with branching white lines, and small yellow spots. It has extended to that part of the skin which is stretched over it, and to the nipple, which is depressed and enlarged at the centre of this surface. At its deepest part fibres of the great pectoral muscle are included in its substance." It seems to have absorbed part of the skin, and to have spread uniformly from the mammary gland.

The second was taken from a patient under the care of Mr. Stanley and Dr. Burrows. He was a butcher, "forty-five years old, and the disease, which was seated in the right breast, had been observed in progress for about thirteen months before his death. Extensive cancerous formations were found in the vertebræ and other bones."

The diseased mass was not removed till after death, and was then found to consist of a scirrhus, smaller than that last described, but which had advanced a stage nearer to ulceration, the skin over the nipple being excoriated, and the nipple itself retracted.

Three more cases are recorded by Mr. Paget, two of which are spoken of in his work on 'Surgical Pathology.'[1]

In the first of these the patient was forty years old when the disease, which had existed five years, was first noticed. He was a compositor by trade, and was under the care of Mr. Lloyd and Mr. Paget. The scirrhus had ulcerated, and there were numerous cutaneous tubercles around it. No operation was performed, and the patient died with cancer of the right ala of the sphenoid bone, and of other adjacent parts of the base of the skull.

In the first volume of the 'Lancet' for 1847 there is a full and interesting report of these two cases (the 3d and 4th) by Mr. Holmes Coote, who appears to have taken his notes of the latter case two years previous to the death of the patient. The man "applied aqua fortis to the swelling, which caused an immediate decrease in size," followed, however, by more rapid growth. No pain was noticed in either of these two cases.

The fourth case occurred in the practice of Mr. Hands, of Hornsey, and was seen in consultation by Mr. Paget and Mr. Skey. The patient was a teacher of languages, and was fifty-two years of age at the time when the disease was first noticed. No operation was performed, and the patient sank under cachexia and exhaustion. The scirrhus ulcerated towards the close, and seems to have taken on a fungoid

[1] 'Lectures on Surgical Pathology,' vol. ii, p. 328.

character, as it is stated that there was a protruding growth. Mr. Paget remarks that all these cases occurred "at a period of life at which the powers of nutrition and reproduction are commencing to decay."

In Mr. Paget's fifth case, the patient, a currier, was under the care of Mr. M'Nab, of Epping, where he lived. He was seen by Mr. Paget in consultation, and was then seventy-three years old. He had noticed the disease two years previously, was not operated on, and is presumed to be still living.

In University College Museum I found two preparations. In one the scirrhous mass is of an irregular form, and about the size of a common plum. It has apparently absorbed the mammary gland, and the nipple is spread out; ulceration has not begun, but the skin seems involved in the scirrhus through its whole thickness, as if its proper structure had disappeared. The other is a compact brownish mass, not larger than a small walnut. It neither extends to the skin nor down to the great pectoral muscle; the nipple seems unaffected.

No history of these two specimens was found, but it is exceedingly probable that neither of them corresponds with the case reported from this institution in the 'Lancet' (vol. ii, p. 489) 1838-9. The patient was under the care of Mr. Liston, and was a plasterer, forty-seven years of age. "The disease was seated in the right breast, and he had first noticed it six months previously. Iodine seemed to keep it in check at first, but when this was intermitted it advanced more quickly than before. It had reached the size of a hen's egg (including, I suppose, integuments), was hard, loose, and accompanied by deep lancinating pain; the nipple was retracted. On section, portions of a fungus-like character were found."

The museum of Middlesex Hospital does not contain any specimens of this disease, but a case is reported in the 'Lancet' (1841-2, vol. ii, p. 414) as occurring in the hospital

under Mr. Arnott. The patient was a shoemaker, aged 84. He was a tall, hearty countryman, from Chisholm. The disease, which occupied the left breast, was of eighteen months' standing, and ulceration had begun twelve months ago. The ulcer was excavated, with a foul surface and thickened, indurated edges; the discharge was copious and somewhat offensive; the skin healthy, except where adherent to the tumour; shooting pains were occasionally felt in the diseased mass, which was moveable on the chest. There was a small, indurated gland deep in the axilla.

Mr. Arnott removed the diseased structure without difficulty. On section, it presented the characters of true carcinoma. Cicatrization was soon effected, and at the end of eight weeks the man was discharged.

I met with two specimens in St. George's Hospital. In one the tumour was removed by Sir B. C. Brodie; the catalogue gives no history of the case. It is a flat, trapezoid mass about half an inch in thickness, and looks like thickened indurated skin; section shows it to be infiltrated with carcinoma. The other occurred in a gentleman, aged sixty-four, and was removed by Mr. Cæsar Hawkins. The patient had noticed it gradually increasing for the space of eight years previously; there was no pain, and none had ever been felt. He attributed the tumour, which was about the size of a walnut at the time of the operation, to a blow from a stone. It was adherent to the skin, but not to the muscle, and the axillary glands were not enlarged. It is a round, pale-yellow mass, imbedded in fat on all sides, and does not appear connected with any other structure. The patient recovered perfectly, and died without any return of the disease about six years after the operation. Mr. Prescott Hewett was so obliging as to inform me that, in addition to these, a second case was in the wards of St. George's Hospital, and that there is a specimen of the disease now in preparation for their museum, which was removed by Mr. Cutler from a patient in private practice.

In the first volume of the 'Lancet' for 1853 another

case is reported from this hospital. The patient was under the care of Mr. Johnson: the disease began at an unusually early period of life, for though the patient was only thirty years of age at the time this history was taken, yet he had been operated on fifteen months previously by Mr. Johnson, and at a still earlier period extirpation had been performed in the country.

The disease is said to have borne some resemblance to keloid, and seems to have been principally limited to the skin; the third operation was confined to "shaving off the skin and tubercles." The patient, it was said, had done well since the operation.

Charing Cross, the London, and King's College, Westminster, and St. Thomas's Hospital Museums do not contain any preparations illustrating this disease, but a case occurred some years ago at St. Thomas's, under the care of Mr. South; it also is reported in the 'Lancet.'[1] The patient was a seafaring man, aged 60; healthy, but of irregular habits; the tumour acquired the size of the fist before it ulcerated; the pain was very violent, the discharge fœtid, but not considerable; the sore, which was seated in the right breast, and apparently arose from a blow, was the size of the palm of the hand and did not appear to have spread much deeper than the skin; his general health was up to this time unaffected, but he eventually sank. The affection had begun about four years previously. Two cases also occurred under the care of Mr. Simon, but in one of these the ravages of the disease seem to have been principally confined to the skin.

In Guy's Hospital are five specimens. In the first, which is very small, the areola is described as being not quite healthy, and the mammary gland, which is the seat of the disease, as "apparently" affected with scirrhus. In the second, the diseased mass is also very small, superficial,

[1] Vol. i, 1850, p. 570.

thin, and of a greyish colour; ulceration seems impending. The mammary gland in the third preparation is somewhat enlarged, and is also described as supposed to be affected with scirrhus; the nipple is entire. These three preparations exhibit but a feeble picture of the progress and violence of the disease, and all traces of their history are lost. They were, I believe, all purchased when the museum was first formed many years ago. But the fourth is a fine specimen of scirrhus, and is further illustrated by a drawing. The patient was under the care of the late Mr. Bransby Cooper. In the fifth case the effects of the morbid action are principally visible in the nipple, though the skin and subcutaneous textures are infiltrated with carcinoma. The growth was removed on account of the frequent bleeding and constant discharge, and the patient, a seaman, aged 41, recovered perfectly. He had suffered under it eight years, and during the last two years the axillary glands had been enlarged.

Through the kindness of Mr. Birkett, I have been informed that there is also, in this museum, a wax model of the male nipple, the surrounding integuments of which are infiltrated with carcinoma. The patient died in the hospital. In addition to these, Mr. Birkett has drawings of three other cases, and histories of four or five more. In Mr. Birkett's Prize Essay, on 'Diseases of the Breast,[1] mention is made of one case in an unhealthy man, 44 years of age. It was removed by the late Mr. Callaway, and there was no return of the disease after fourteen months had elapsed. I am also permitted to state, that three cases of the disease in the male have been met with at the Cancer Hospital. Without exception, the surgeons and curators of these hospitals have lent me the most prompt and kind assistance, and I am happy in being able to thank them publicly for their courtesy.

The second volume of the 'Lancet' for 1848 contains a brief account of a case read before a meeting of the

[1] 1850, p. 258.

Provincial Medical and Surgical Association by Dr. Borham, of Truro, on behalf of Mr. Spry. "The disease presented itself as a hard tumour in the breast of a gentleman 71 years of age, in other respects apparently in good health. The tumour had existed four years, and as it did not seem to implicate the axillary glands it was removed," and at that date the patient was doing well.

The most extraordinary case that I have met with is one which occurred many years ago in Winchester Hospital, and is reported in the 'Lancet.'[1] The patient was only 25 years of age, yet the disease had already existed three years: within the last twelve months it had become more distinct and indurated; it was the size of a walnut, and adherent; there were severe lancinating pains, and a slight discharge from the nipple. The tumour was removed, and found, on examination, to be pure scirrhus; the patient made a rapid recovery.

Farr[2] reports a case of scirrhus of the left breast in a gentleman who was under his care; the patient was upwards of seventy years of age. With the exception of this brief account, and the cases referred to in Mr. Paget's work, I have been able to glean no further information from their writings or from those of the two Coopers, Bell, Carswell, Walshe, Simon, Home, Wardrop, Young, Johnson, and Lamb. I have likewise examined the Cyclopædias and most of the English periodicals for the last sixty years with no better result.

I have been assured by some most experienced surgeons, among others by Dr. Knox, that they never saw this disease in Scotland. Bennet, Lizars, Pirrie, Miller, and Syme do not speak of it, and the Scotch journals which I have examined do not contain a single case. Indeed, the possibility of such an occurrence can only have been generally known in Scotland within the last half century, as in the 'Edinburgh Medical Journal' for 1808, the question is put whether scirrhus "is ever seen in the breast of the

[1] 1826-7, vol. ii, p. 832.

[2] 'Essay on Occult Cancer.'

male, which performs no sexual function?" The question, however, had been answered in the affirmative by M. Le Dran thirty years previously.[1]

On the other hand, Mr. Liston, in a clinical lecture on the case referred to as occurring at University College Hospital, told his class that he had not seen more than eight or ten cases of diseased mamma in man. He does not say, but from the context it would clearly appear that he meant scirrhous disease. Now at this time Mr. Liston had not long held his chair, so that we may fairly assume that many of these cases occurred in Scotland. In 1839, Mr. Robert Taylor was present when Mr. Syme removed a cancerous tumour from the breast of a young Scotchman; it had ulcerated rather extensively.

In the periodical literature of Ireland I have not been fortunate enough to find any notice of the subject. Mr. Carmichael does not allude to scirrhus in the male, either in his Essay or Lectures on this disease.

Nor have I been more successful with the German periodicals. Schmidt's Jahrbuch and Canstatt's Jahresbericht, generally such faithful mirrors of the progress of medicine, contain one solitary notice of a case occurring under M. Blandin. Neither Rokitansky nor Schuh, Siebold, Chelius nor Henle, say a word on this disease in male subjects. In an examination of 67 persons who died of this disease in Ratisbon, no instance was met with of its occurrence in the male breast.

The 'Annali di Omodei' and Strambio's 'Journal' and 'Annals,' the works of Marjolini and other Italian writers I have consulted are silent, so that it must be rare or have attracted little attention in Italy.

I believe an impression exists that this disease is much more common in France than in England and Scotland. Such was my own conviction, but I am very doubtful if it be correct.

M. Lebert[2] says that he has only seen two cases of true

[1] 'Mémoire de l'Académie de Chirurgie,' vol. iii.

[2] 'Traité Pratique des Maladies Cancéreuses,' p. 355.

cancer of the breast in man, the others being referable rather to cutaneous cancer. In his work on 'Pathology,'[1] he gives a case of fungoid disease of the breast of a man aged forty-five, but none of scirrhus. M. Tanchon, in an abstract from the registers of Paris, extending over eleven years, from 1830 to 1840 inclusive, sets down the number of deaths from cancer at 9118, out of which 5 were cancers in the male breast.

M. Velpeau[2] has met with nine or ten examples of this form of cancer, one of which left him in some doubt as to whether the tumour was not rather fibro-plastic than scirrhous. He however seems to have only rarely met with general carcinomatous infection in the male; the following, at least, being the only example given. A patient who had been operated on for scirrhus by M. A. Berard, suffered from a return of the disease in the axilla; M. Velpeau operated for this, and the patient died from general cancerous infection. If all M. Velpeau's remaining cases were genuine scirrhus, we still find that his long and active career has scarcely furnished more than Mr. Liston met with in twenty years.

In the 'Ann. de Thérapeutique' a case is given where M. Blandin removed a cancer from the male breast. In the fifth volume of the 'Lancette Française,' we find a case of carcinoma of the breast, the size of a pullet's egg. On the 12th of December, 1850, M. Deguisé showed to the Société de Chirurgie the breast of a man, aged sixty-eight, affected with cancer, which he considered encephaloid,[3] an opinion which was questioned in the subsequent discussion. The works of Lisfranc, Cruveilhier, Vidal de Cassis, &c., the French journals, dictionaries, and memoirs, especially those of the Academy of Surgery, have been searched carefully without my finding a single case.

Dr. Warren in his work on 'Tumours,'[4] gives a case. The patient was a gentleman of Boston, thirty years old:

[1] 'Physiologie Pathologique,' tome ii, p. 317.
[2] 'Maladies du Sein,' par A. Velpeau, 1854, p. 112.
[3] 'Lancette Française,' 1850.
[4] P. 282-3.

"He had not enjoyed good health for three years, being dyspeptic, and he had also frequent pains in the chest. These pains at last concentrated in the right side." Here a tumour formed, the pain of which gradually became very severe; it ulcerated, and Dr. Warren excised the whole scirrhous mass. Eleven years after, the patient was still well. In addition to this, Dr. Warren has only seen one case.

With regard to the causes of this disease in the male, I will not venture any conjecture. Some writers consider it, as in the female, connected with the decay of the reproductive faculty, while Mr. Paget,[1] speaking of this disease in women, has thrown out the much bolder view that they are concomitant phenomena, both depending on decay of nutrition. It might be interesting to examine how far this view is borne out by the cases given, as those of Lyford and Warren rather prove that the disease may attack the male even before his growth is complete. Moreover, as its range of action extends over at least sixty years, it may be surmised that something more is requisite for the production of this disease, than those changes which we usually comprise under the name of decay of nutrition. Still this view, in a modified form, may be correct. A gland may turn prematurely old in the young subject, or retain its vigour till a late period of life. Just as we see the testicles, hair, eyes, and teeth decay at an early period in some persons, and remain strong in others at an advanced stage. Cancer, then, may be a result of local decay.

It has been frequently stated that the course and symptoms of this disease are the same as in the female; but in the cases of cancer which I have seen, the pain has been more violent, and the destruction of the breast much greater. Dr. Van der Byl informs me that some years ago he examined a case of this disease in the male, and found that the minute structure was exactly similar to that which is seen in cancer of the female breast.

[1] 'Lectures on Surgical Pathology,' vol. ii, p. 328.

Mr. Paget appears to take the same view of its tendency to a fatal termination in man as in the female. Mr. Holmes Coote does not think it more manageable than in woman. M. Blandin considers relapse after operation much more frequent in man than in woman; he also thinks the disease much more seldom involves the whole gland in the male. In direct opposition to these authorities stands M. Velpeau, who has only of late years admitted the tendency of this disease in the male to return, or infect the system generally; and he is still of opinion that extirpation or destruction by caustics offers a better chance than in the female.

Most of those authors whom I have consulted express no opinion on the subject, and hence it seemed a legitimate subject of pursuit to collect together whatever cases could be discovered, so that those interested in the subject might be able to find them in an available form.

ANALYSIS

OF

FIFTY-TWO CASES OF EPILEPSY

OBSERVED BY THE AUTHOR.

BY

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Received Feb. 20th.—Read May 12th, 1857.

THE 52 cases of epilepsy upon which the following analysis is based have occurred exclusively under my own observation, and the conclusions to which I desire to draw the attention of the Society will only bear upon points with reference to which satisfactory evidence could be obtained.

Sex.

Twenty-four were females, or 46·15 per cent.

Twenty-eight were males, or 53·84 per cent.

This observation is in accordance with the generally received opinion among British physicians that the disease more frequently affects the male than the female sex, though it does not establish a preponderance on the side of the former of more than 7·69 per cent.

NOTE.—A detailed account of the symptoms, progress, and treatment of the fifty-two cases on which the foregoing analysis is based were presented to the Society, for verification of the statements contained in it, at the time when the paper was read.—*Ed. Sec.*

Age.

The following table exhibits the distribution of the cases throughout the different periods of life; the basis for the calculation is not the age of the patient when under treatment, but the age at which the epileptic paroxysm first occurred:

Period of first occurrence.	Number of cases.		
0— 5 years	12	17	36, or 69·23 per cent. — From infancy to the age of 20 years inclusive.
6—10 „	5		
11—15 „	11	19	
16—20 „	8		
21—25 „	3	4	8, or 15·38 per cent. — From 21 to 40 years inclusive.
26—30 „	1		
31—35 „	4	4	
36—40 „	0		
41—45 „	3	7	8, or 15·38 per cent. — From 41 to 55 years inclusive.
46—50 „	4		
51—55 „	1	1	

Arranged according to sex, we find that during the first decennium of life there were 8 males and 9 females; during the second, 12 males and 7 females; during the third, 2 males and 2 females; during the fourth, the same numbers of each; during the fifth, 2 males and 3 females; and during the sixth one female.

Period.	MALES.		FEMALES.	
	Absolute number.	Per centage.	Absolute number.	Per centage.
0 to 10 years	8	28·57	9	37·5
11 „ 20 „	12	42·85	7	29·16
21 „ 30 „	2	7·14	2	8·33
31 „ 40 „	2	7·14	2	8·33
41 „ 50 „	4	14·28	3	12·5
51 „ 60 „			1	4·16
Total	28	...	24	...

This table demonstrates that the tendency to the disease is, as was already shown by Tissot and Esquirol, nearly equal in the

two sexes during the first ten years of life; that the male sex, during puberty, exhibits a more marked proclivity to epilepsy than the female; and that in the later periods of life, again, the ratio observed during childhood appears to prevail; though, as in this case, with a balance on the side of the female. The above numbers would not in themselves suffice to establish a law; but taken in conjunction with the results obtained by other observers they appear to deserve attention.

Causes.

An hereditary taint could be traced only in 6 cases (Nos. 13, 14, 18, 22, 37, 53), or in 11·1 per cent. A definite cause was assigned by the patient or the patient's friends in 16 cases, or nearly one third of the whole. Among these, otorrhœa is mentioned twice; fright twice; injury to the head twice. On a perusal of the "causes" it will be apparent that they differ in the relation which they could have respectively borne to the occurrence of the seizure.

The following are the numbers of the cases and the respective causes assigned:

No. 5. Otorrhœa.
„ 10. Fright.
„ 11. Mental exertion.
„ 22. Scarlet fever.
„ 24*a*. Cutting teeth.
„ 25. Swallowing the core of an apple.
„ 27. Operation for strabismus.
„ 29. Otorrhœa.
No. 31. Derangement of stomach.
„ 32. Blow on head.
„ 34. Pregnancy.
„ 35. Anxiety.
„ 37. Approach of catamenia.
„ 41. Fright.
„ 43. Fall on head.
„ 44. Fever.

Premonitory symptoms.

The occurrence of an aura is a point upon which authors have expressed different opinions. I find that an aura, under which term I comprise all premonitory symptoms

indicating the occurrence of a seizure, is noted in 27 out of 52 cases, or rather more than one half.[1] The most frequent indication of an approaching fit is a sense of giddiness and impairment of vision; sometimes the patients suffer pain in a definite region of the body, or they are unable to define the sensation, but are aware that some change is going on from which they know that the paroxysm is about to take place. It will be observed that the premonitory symptom is never described by the patient as a puff of wind, or an "aura" in its verbal sense.

CASE 2. Sense of choking and dimness.
" 3. A sensation extending from the thumb up the arm, with spasm of the latter.
" 4. Headache.
" 6. A sensation ascending from the stomach.
" 7. A sensation passing from the hand to the head.
" 8. Dimness and pain in the right arm. (These premonitory symptoms did not occur at the time the patient was under treatment, but had prevailed at an earlier period.)
" 9. Pain across the shoulders.
" 10. Loss of sight.
" 11. Vertigo and general stiffness.
" 12. Feeling of illness for half an hour before fits.
" 13. Head goes round.
" 17. Sense of suffocation and tremors.
" 18. A momentary warning.
" 21. Dimness.
" 22. Short cough.
" 24*a*. Sickness.
" 26. Lightness of head followed by oppression. (In this case the premonitory symptoms were generally absent.)

[1] Romberg (Syd. Soc. Ed., translated by E. H. Sieveking, M.D., vol. ii, p. 197) observes that he found an aura to occur in about one half of his epileptic patients.

Case 28. Sense of strangeness.
„ 31. Pain at stomach and sickness.
„ 33. Drowsiness.
„ 34. Loss of power in left hand for twenty minutes before fits.
„ 36. Rigors.
„ 40. Pain in hypogastrium.
„ 41. Shaking and curious sensation in hand.
„ 43. Lightness in head.
„ 46. Sense of heavy weight.
„ 53. Sometimes fits preceded by a cry.

It follows that the presence or absence of a premonitory symptom is not essential to the diagnosis of epilepsy.

Individual symptoms.

Headache.—Headache is a very frequent concomitant of epilepsy. It was observed in 33 out of 52 cases, or 63·42 per cent. The mode in which it occurs varies considerably. The patient either suffers habitually or very frequently from it, and the symptom bears no immediate relation to the paroxysm; or the headache occurs shortly before the paroxysms so as to usher them in; or again, it affects the individual only after the fit is over.

The headache was constant or frequent in 19 cases, or 36·5 per cent.

It occurred before the fits only, in 4 cases, or 7·7 per cent.

It occurred after the fits only, in 10 cases, or 17·3 per cent.

Biting the tongue.—Biting the tongue is regarded, and justly, as an important corroborative symptom of epilepsy, and is so far valuable in point of diagnosis. It is, however, by no means uniformly present, nor does it constantly occur in the paroxysms affecting the same individual. Many attacks may take place before the tongue is bitten, so that, if we base our diagnosis upon this symptom as pathognomonic, we shall often be at fault.

The tongue was found to be bitten in 17 cases, or in 32·7 per cent.

Urine.—I have met with no appearance or constituent of the urine which bears any uniform ratio to the disease in question.

In 19 cases (Nos. 13, 14, 18, 19, 21, 22, 23, 24*a*, 25, 28, 35, 36, 37, 40, 42, 43, 44, 50, 51) in which the urine was tested for albumen, it was found temporarily present in one (37), permanently in one (23).

The urine was examined for sugar in 14 cases (Nos. 18, 19, 21, 25, 28, 35, 36, 37, 40, 42, 43, 44, 50, 51), and it was not found once;[1] a result which appears irreconcilable with the observations of Dr. Goolden, that sugar is commonly found in the urine of epileptic patients.

Results of Treatment.

Without entering into the very complicated question of the mode of treatment advisable in different cases and under different circumstances, I would express a feeling of scepticism with regard to the positive certainty of any cure of epilepsy. In the majority of cases I believe that no organic lesion, in the ordinary anatomical sense of the word, was present at the commencement of the disease, and in a large number of cases no organic lesion appears to result from the long-continued recurrence of the epileptic paroxysm. It appears that the presence of a diathesis is essential to the occurrence of the disease; and that it may be suppressed or held in check: whether it may be eradicated is a question which I would not venture to answer in the affirmative. I am satisfied of the power of well-selected remedies in repressing and often indefinitely postponing the paroxysms. I would particularly insist upon the extreme importance of dietetic and regiminal treatment; still the frequency with which, after long intervals of rest, this demoniac affection is found to present itself again, in the same individual, must be a warning to every physician not

[1] The tests employed were Trommer's, Moore's, Barreswill's, and Kletzinsky's.

to reckon with too much confidence upon the permanent success of his treatment.

The number of (apparent) cures was 15, or 28·85 per cent. Among these I have included those only in whom the fits had ceased to appear for a considerable period after treatment was adopted. More or less benefit was obtained in other instances; but to these I do not more particularly advert.

The cases reported as cured are Nos. 4, 5, 6, 7, 8, 9, 14, 18, 19, 22, 28, 29, 31, 36, 44. Of these one, No. 18, returned to me after a free interval of a year, when the fits again showed themselves, and were again arrested by the same mode of treatment.

The duration of the disease previous to the individual's coming under treatment is a point of interest; the curability manifestly bearing an inverse ratio to the duration.

Case 4. Three to four weeks.	Case 19. Two years.
„ 5. Six years.	„ 22. First fit.
„ 6. Two years.	„ 28. Two years.
„ 7. Three weeks.	„ 29. Four months.
„ 8. Eight years.	„ 31. Nine months.
„ 9. Two years.	„ 36. Three years.
„ 14. Ten days.	„ 44. Recent.[1]
„ 18. One year.	

Including the last case, 8 of the 15 (apparent) cures were wrought in cases that had lasted one year and under (viz., 4, 7, 14, 18, 22, 29, 31, 44); 4 were of two years' duration, 1 of three, 1 of six, and 1 of eight years.

To go into the details of treatment would involve the necessity of an argument on the pathology of the disease, longer than the members of the Society would be disposed to receive. I will only venture to say a few words on the subject. If we regard epilepsy as the symptom of a deep-seated constitutional affection our treatment must neces-

[1] In this case there had been an epileptic paroxysm seventeen years previously.

sarily vary with the nature of the latter, unless it can be shown to present an unvarying character. In some peculiarly fortunate cases we may succeed in discovering and removing the exciting cause of the paroxysm, and may thus prevent the recurrence of the seizure; but, in the majority of instances, this is not feasible, and we are called upon to deal with the affection as it exists, without reference to antecedents.

The following is an enumeration of the main remedies which were employed in the most successful cases, which will at the same time serve to indicate the line of practice which I commonly adopt. In the enumeration the dietetic and regiminal measures are not included, but I would again urge their extreme importance.

Case 4. Blister; purges.
„ 5. Seton; purges.
„ 6. Tartrate of antimony ointment to neck; seton; steel.
„ 7. Counter-irritation at nape; cotyledon umbilicus.
„ 8. Cupping at nape; diuretics; zinc.
„ 9. Purges; tonics.
„ 14. Blister; Ferri et Quinæ Citras.
„ 18. Sulphas Zinci, ad gr. x.
„ 19. Calomel; Digitalis; Tr. Ferri Muriat.
„ 22. Morphia.
„ 28. Sulphas Zinci, ad gr. xxxvi (triginta sex).
„ 29. Ol. Jecoris.
„ 31. Vinum Ferri.
„ 36. Purges; blisters; strychnia.
„ 44. Quina; steel; Nitras Argenti.

From this enumeration I would merely draw this inference, that the main indications which should guide us in the treatment of epilepsy are—to remove local congestion by counter-irritants, to promote the healthy action of the secernent organs, and to give tone to the constitution by vegetable and metallic roborants. I would express my belief that we possess no specific for epilepsy; the salts of

zinc, which have of late been very prominently put forward, frequently fail.

In conclusion, I would beg to offer my apologies to the Society for presenting these desultory observations. The composition of an elaborate essay on the subject of epilepsy would have been a question of time only; but, from the days of Hippocrates, who energetically combated the popular superstitions of his day bearing upon the νόσος ἱερὸς, to our own times, so much that is vague and indefinite has been said and written on the subject, that I have been particularly anxious not to make a further addition to the *rudis indigestaque moles* of mere hypothesis already existing in this department of medical science.

POSTSCRIPT; *20th July*, 1857.

The chief writers who have occupied themselves with epilepsy differ upon the question as to whether it prevails more in the male or in the female sex. Foville, Frank, Tissot, Esquirol, and Moreau may be mentioned among those who state that the greater proclivity is on the side of females; Drs. Elliotson, Watson, Romberg, and Boyd may be mentioned among those who hold that males are more frequently attacked than females. My own experience tallies with the latter. I do not propose to enter into an inquiry as to how far the epileptic cases in the Salpetrière and Bicêtre respectively represent the average frequency of epilepsy in France, though it is a fair question whether they do so; there can, however, be no objection to the validity of a return with which (since writing the preceding paper) I have been favoured by Dr. Farr, of the Registrar-General's Office, an Honorary Fellow of the Medical and Chirurgical Society. As this return embraces the deaths from epilepsy throughout England and Wales for seven years, and therefore represents a larger field than, as far as I know, has

ever yet been explored for this particular purpose, I think that it is not without interest, especially as it may be regarded as conclusive evidence of epilepsy affecting the male sex chiefly, at least in England and Wales.

DEATHS AT EACH AGE AND IN EACH SEX FROM EPILEPSY THROUGHOUT ENGLAND AND WALES FOR THE SEVEN YEARS 1848—1854.

	Total.	Under one year.	1	2	3	4	Under five years.	5	10	15	25	35	45	55	65	75	85	95 & upwards	Not specified.
Males	6,729	231	118	91	64	59	563	256	361	996	1063	1039	876	679	559	291	37	2	7
Females	6,147	162	90	65	54	58	429	214	329	1174	1054	854	650	600	531	267	42	1	2
Persons	12,876	393	208	156	118	117	992	470	690	2170	2117	1893	1526	1279	1090	558	79	3	9

From this paper, then, it appears that the proportion of deaths from epilepsy are—

Males . . . 6729.
Females . . . 6149.

or, Males . . . 52·26 per cent.
Females . . . 47·73 „

The average male mortality from epilepsy in England and Wales is 961·3; that of females 878·1, annually, yielding a difference of 83·2, which goes to the male account.

The table does not necessarily prove that the ratio of seizures is the same in both sexes, but it offers very strong evidence to that effect.

A CASE

OF

DISEASE OF THE HEART,

WITH

GREAT DILATATION OF THE AURICLES.

BY

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Received March 31st.—Read May 26th, 1857.

THE history of the following case presents, for the consideration of the medical observer, several matters of much interest in connection with cardiac disease; I have therefore ventured to think it worthy of the attention of the Fellows of this Society. It is interesting, as demonstrative of the extraordinary degree of deviation from its healthy state of the great central organ of the circulation, with which a long life is, under certain conditions, compatible. In the physical diagnosis of cardiac diseases, it presents us with certain unwonted phenomena which appear but little in unison with the generally recorded experience of clinical observation. A hint, moreover, may perhaps be gleaned from the case, regarding the physiological action of the auricles of the heart. The value of medical art in prolonging existence, even when great and irremediable injury has befallen a vital organ, also, is herein strikingly exemplified.

I saw Mr. T—, the subject of the following details, but once, three days before his death, in consultation with my friend Dr. Peregrine; and I then gathered from his wife the following short account of his previous state of health. He was 69 years of age. He had been subject to cough for forty years. Twenty-six years ago he was attended by the late Dr. Nevinson, for dropsy; and from that time to the present he has been subject to more or less difficulty of breathing, to palpitations, to spasms, and to occasional attacks of dropsical swelling of the legs. As much as twenty-four years ago his life was despaired of on account of the extent of the dropsical effusions; and fifteen years ago he was told that the dropsy and the painful symptoms from which he suffered were the consequences of disease of the heart. These particulars are worthy of note, because they appear to show, in the absence of kidney-disease, that this patient had been, for about thirty years at all events, the subject of organic disease of the heart,—of that degree, indeed, of organic disease, which demonstrates its presence in severe derangements of the functions of the respiration and the circulation, and not merely by the existence of a small cardiac bruit, unattended with any such symptoms.

During the past two years the disease has rapidly increased upon him; his breathing has been more difficult; the dropsical symptoms have been more constant; the spasmodic attacks more severe and frequent. Exertion of any kind was nearly impossible; if he attempted to walk, he would be suddenly stopped by an agonising feeling of suffocation—he would be, as his wife described it, "drawn up with pain." The spasmodic attacks, "like violent asthma," when they came on, appeared to differ little from that assemblage of symptoms which bears the name of angina pectoris.

When I saw the patient, it was clear that the last agony was near at hand. His breathing was hurried and laboured; the pulse rapid and very irregular; the lower extremities and the scrotum distended with serous effusion. He could not lie down in bed. About the upper parts of the thorax the *respiratory murmur* and the percussion-sound were

clear; at the lower parts the percussion-sound was dull; evidently from the presence of pleural effusion. The *heart* was felt beating, with an extensive heaving impulse, quite in the left lateral region of the thorax; it was also felt over the whole precordial region, but indistinctly near the sternum; the percussion sound was also extensively dull over the lower front part of the left side of the thorax. Over the sternum the percussion-sound was tolerably clear. At a point about an inch and a half or two inches from the right edge of the sternum, and in the fifth intercostal space, *a pulsation* was observed, synchronous with the ventricular systole. This pulsation was visible along a space of about three quarters of an inch; it communicated a strong thrill to the finger placed upon it, and likewise forcibly raised the finger. The stethoscope, placed over it, transmitted to the ear of the observer a loud, prolonged, rough murmur. There was also observed a loud bruit over the whole precordial region; and a slight impulse of the heart was perceptible at the epigastrium.

It was evident enough, from the nature of the above signs, that there existed great enlargement of the heart and extensive valvular disease. But what was the nature of the pulsation felt in the fifth intercostal space, an inch and a half to the right of the sternum? to what abnormal condition of parts could it be attributed? The character of the pulsation, and of the thrill, and of the bruit which accompanied it, naturally at once suggested the idea of its being aneurismal; but then, how could the existence of an aneurism at such a point be explained? If an aneurism existed here, it must be aortic or cardiac; but it was scarcely conceivable that an aneurism of such origin could present itself so low down in the thorax, and show no signs of any immediate connection with the heart. The impulse should have been widely heaving, like that of a large aneurismal sac; not limited, as this pulsation was, to a single point. On the other hand, that the pulsation had no origin from any part of the heart itself, seemed clearly indicated by the position of that organ, which, as described, was felt

beating quite in the left lateral region of the thorax, and by the fact also of the clear percussion-sound heard over the sternum. Under such circumstances, it was scarcely conceivable that any portion of the heart could occasion a pulsation so far away to the right of the sternum. This consideration led me to the conclusion, very guardedly expressed, that the pulsation was aneurismal.[1]

The patient died three days after these notes of his case were taken. *Necropsy* revealed the following condition of the parts in question. On opening the *thorax* I found, to my surprise, the pericardium so distended as to reach across the thorax almost from side to side; the horizontal diameter of it could not have measured less than eleven or twelve inches, and contrasted remarkably with the comparative narrowness of its vertical diameter. When the sac was slit across, a small quantity of serum escaped; and it was then seen that this enormous distension resulted from the dilatation of the heart's cavities, and particularly of its auricles, which were remarkably prominent; the veins coursing along the base of the ventricles were as large as a thumb, and, like the heart, were distended with blood. On removing the heart from its attachments, and as the great vessels were cut across, about three pints of blood, partly fluid and partly in large coagula, escaped from its different cavities: and when the blood was wholly washed away, the heart, recently so enormously distended, fell together like a flabby

[1] I was not aware at the moment that an aortic aneurismal tumour had ever been observed pulsating in the fifth intercostal space on the right side; but I have since learnt from Dr. Sibson, who has been lately engaged in a most extensive series of investigations, relative to the pathology of aneurisms, that he has met with one such out of 500 cases. It is recorded in the 'London Medical Gazette' for 1828, and occurred in the practice of Dr. Bright at Guy's Hospital. It is stated, "that, from the situation of the pulsating tumour, great doubt was felt as to its nature;" it had the characters of aneurism, but "it was too low for the aorta, being between the fifth and sixth ribs." Had I known of the existence of such an aneurism, it would naturally have only confirmed me in what proved to be an erroneous conclusion in the present instance, as shown by the post-mortem examination.

membranous bag, having no trace of muscular firmness or resiliency. The *right auricle* reached far away to the right of the sternum, and occupied that portion of the thorax, beneath the parietes, where the pulsation had been felt, and also all the parts immediately surrounding that spot. Hence it became manifest that the pulsation, the thrill, and the loud prolonged bruit, took their origin from the right auricle.

The following was the condition of the heart. The *right auricle*, even when emptied of its contents, was still dilated to at least five or six times its natural capacity; its parietes were reduced to a mere membranous condition, and presented no trace of muscular tissue, excepting in the auricular appendix. The *tricuspid orifice* was considerably dilated, but its valves were correspondingly enlarged, and appeared capable of well closing the opening. The *right ventricle* was much dilated and hypertrophied. The *left auricle* was enormously dilated; its cavity, when distended during life, could not have contained less than from sixteen to twenty ounces of fluid; when slit open, it measured about sixteen inches in its widest circumference; it was reduced to the condition of a mere membranous sac; no trace of muscular tissue being perceptible in any part of it. The *mitral orifice* was contracted into a hard, cartilaginous-like slit, about an inch long; the *mitral valves* were hardened, thickened, contracted, and partially united at their borders; but would probably have permitted only slight regurgitation during the ventricular systole. The *left ventricle* was slightly dilated and hypertrophied. The *aortic orifice* was somewhat contracted; its valves were thickened, but appeared capable of closing the orifice; there was but little atheromatous degeneration of the aorta. The *muscular tissue* of both ventricles was in a far advanced state of fatty degeneration.

I need not detain the Society by minutely relating the conditions of the other organs of the body, as they have no immediate reference to the special points here considered. The lungs were much reduced in size in the lower parts of

the thorax, being compressed by the enlarged heart and the pleuritic effusion; the lower lobe of the left lung was thus in particular encroached upon. The upper parts of both lungs were emphysematous and dilated; a remarkable tongue-like lobule extended from the apex of the left lung far down behind the sternum, over the heart. This dilated lobule it was which produced the clear percussion-sound noticed as having been observed low down over the sternum; its presence obscured the diagnosis, because it was not unreasonable to conclude that, inasmuch as there was no continuity of dull percussion-sound across the sternum, there could be no continuity between the heart and the pulsating tumour.

As a pathological specimen, I believe this heart is very remarkable; such enormous dilatation and such complete change of structure of the auricles very rarely fall under the observation of the pathologist. That such extraordinary alterations of the heart's structures are compatible, even for a short period, with existence, seems surprising; but that life should be thus lengthily prolonged is a valuable fact acquired to medical experience. As explanatory of this, it is well to remark, that the patient, having the means, had also the strength of mind necessary to subject himself to a most rigid discipline; he had for many years been very strict and cautious in his diet; he faithfully followed the hygienic rules prescribed for his guidance; the slightest deviation from this regular mode of living, experience taught him, was productive of great suffering and general disturbance, from which he did not readily recover.

In relation to the physical diagnosis of cardiac diseases, this case presents one or two points of special interest. We have here the fact demonstrated, that a pulsation felt some distance away to the right edge of the sternum may be a cardiac pulsation, even though the heart be, at the same time, felt pulsating in the left lateral thoracic region. Again, the extensive beating of the heart in the left lateral region does not always indicate (as we are taught in our text-books) enlargement of the left ventricle, for in this case the left ventricle was little larger than normal. The

pulsation, the thrill, and the bruit, arising from the right auricle, are also facts rare and anomalous. What occasioned them? The pulsation occurred during the ventricular systole, and must have therefore been coincident with the auricular diastole. Hence it is evident that it must have been caused either by tricuspid regurgitation of blood, or by the rush of blood from the venæ cavæ into the auricle, or by a combination of both these causes; and there can be no doubt that the cause which produced the pulsation likewise occasioned the thrill and the bruit; so that the explanation of one of these phenomena is the explanation of them all. That tricuspid regurgitation did not cause the pulsation, seems indicated by the perfect condition of the tricuspid valves, by the degree and character of the pulsation itself, and by the absence of pulse in the cervical veins during life. The thrill, also, accompanying the pulsation, points to some other cause. Our most esteemed authorities on auscultation tell us that thrill over the right auricle, associated with tricuspid regurgitation, is unknown to them; that murmurs thence arising are invariably of a soft, gentle, blowing character; and that, indeed, tricuspid regurgitation is more frequently unaccompanied than accompanied with murmurs. Hence, then, it would seem, that we must place the pulsation, the thrill, and the murmur, to the account of the blood rushing into the auricle from the venæ cavæ during its diastole. One would naturally speak very guardedly in offering an explanation of such physical phenomena occurring in so exceptional a case; and I can only suggest, that the murmur and the thrill arose from the fact of clots of fibrin having been formed in the auricle at the time I saw the patient, which clots were thrown into vibration by the blood flowing into the auricle from the venæ cavæ; it is possible, also, that clots may have been formed at the tricuspid orifice, and have so given occasion to partial regurgitation. I cannot, however, but believe, that the phenomena in question indicate a much greater force in the venous current, passing into the auricles from the venæ cavæ, then is usually attributed to it.

The absence of muscular structure in the auricles of the heart proves that the force of the venous current is of itself sufficient to carry the blood forward into the heart's ventricles, unaided by any auricular contractions; and that the circulation must have been for a long period carried on in this way is manifest enough, from the condition of the auricles, whose altered structure is clearly of no recent date. Still more surprising does this fact appear when we recollect that the venous circulation was directly impeded by the great contraction of the mitral orifice.

Such are a few of the most interesting facts which this case presents for our consideration. Unwonted phenomena of the kind here met with demonstrate the difficulties which occasionally beset the physical diagnosis of cardiac diseases, and indicate, also, the possible existence of other causes of abnormal cardiac sounds than those ordinarily recognised. Every one who has paid attention to the physical diagnosis of this class of diseases, knows well enough that, in their study, he frequently meets with strange phenomena, of whose nature he can render to himself no satisfactory account. Rare cases of the kind here given are, I think, in this sense, of especial service; they may afford us hints which shall aid in clearing up the difficult phenomena occasionally met with in more ordinary cases.

CASE

OF

INTENSE AND LONG-CONTINUED

PHOTOPHOBIA AND BLEPHAROSPASM,

RELIEVED BY

THE INHALATION OF CHLOROFORM.

BY

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Received April 9th.—Read May 26th, 1857.

C. M—, a young woman of twenty-two years of age, of a healthy and cheerful appearance, an inmate of the Glasgow Asylum for the Blind, was brought to me, February 13th, 1857, affected with intolerance of light and spasmodic closure of the eyelids, so intense that, with the strongest effort of the will, she was unable to open her eyes in the slightest degree. It was with difficulty that I could raise either of her upper eyelids sufficiently to obtain a partial and momentary glimpse of the eyeball. When I forcibly opened either eye I generally found the pupil completely turned up behind the upper eyelid; but as the eye was exposed, it suddenly darted down so as to hide the pupil behind the lower eyelid. This convulsive movement was so rapid, that it was impossible to examine the state of the eyeball. The white of the eye, however, appeared free from redness, and the corneæ pretty clear. The corneæ seemed to me to be below the average size, but this turned out to be a mistake. The patient saw the light when the

eyes were thus opened, but no object. The influx of the light evidently caused acute distress, so that the eyes closed with violence against it. Neither the epicranius nor the corrugator supercilii was affected, but only the orbicularis palpebrarum; and, perhaps sympathetically, the levator or depressor oculi, as was shown by the rapid rolling of the eye upwards or downwards on its being forced open. There was evidently hyperæsthesia of the retina; but the integuments betrayed no increased sensibility to the touch. Many of the teeth had suffered from caries. I considered the case as one of irritation, reflected probably from the optic nerve through the brain to the facial; although it seemed doubtful whether the state of the teeth, by affecting the branches of the fifth nerve, might not be the source of the evil.

I learned with astonishment that the state of photophobia and rigid compression of the eyelids, in which I saw the patient, had continued without intermission for sixteen months, and that in this condition the girl had been admitted into the Asylum for the Blind as one hopelessly deprived of sight. She stated that her eyes had suffered much from inflammation (probably of the nature, I concluded, of phlyctenular conjunctivitis, or of scrofulous corneitis) when she was a child; and I gathered that she had been asthenopic, being unable to read beyond a few minutes at a time. She had also suffered much from headache, and from toothache. She was first attacked with blepharospasm about two years ago, the eyes continuing shut on that occasion for three days. They then opened, and continued free from spasm for some months. Another attack followed, and continued during six weeks; then an intermission for three weeks, then a relapse for a fortnight; and lastly the present attack, which has proved of much longer duration than any of the former.

The general health of the patient appeared to be excellent; her appetite was good; her bowels regular. She had no hysteric symptoms. She was not conscious of any intermission of the complaint during the period stated. Sleep

seemed to have no influence over it. It was neither better nor worse at the catamenial periods, which were regular. She could assign no exciting cause for the present, nor for any of the former attacks.

When, some ten years ago, the inhalation of the vapour of sulphuric ether came into vogue for rendering insensible patients about to undergo surgical operations, I was induced to try the same practice as a means of alleviating painful diseases of the eye, and, among others, excessive intolerance of light attendant on some of the ophthalmiæ. In the 'Medical Gazette,' for June 18th, 1847, I inserted a short notice of its good effects, and pointed out the remarkable fact that the relief given to painful and spasmodic diseases of the eye, by the inhalation of a narcotic vapour, was not temporary, but generally permanent, a circumstance which greatly recommends such medication to the attention of practitioners. Led, then, by my former experience of the inhalation of sulphuric ether in somewhat similar cases, I resolved to try that of the vapour of chloroform in the case of C. M—.

At intervals of three or four days, I put her seven times under chloroform, never pushing it to complete insensibility. Each application produced a decided diminution of the symptoms, the patient being able, after the third or fourth application, to move the eyelids over the eyeball, although not to open them, while on my lifting the upper eyelid with my finger, she caught a glimpse of objects before her as she rolled the eye from behind one or other eyelid. After the seventh application, she opened her eyes fully, and saw every object around her.

When she called on me, on the 13th of March, she was able, with some little difficulty, to read a few lines of ordinary type. I then observed that the eyes were of normal size, the pupils rather large, the corneæ somewhat nebulous; that the patient held the book near; and that the eyeballs were slightly affected with oscillation. She was of course greatly delighted with the surprising change in her state of vision, being able to walk about without being led, and

seeing everything around her—a striking contrast to the state of eclipse in which she had been for upwards of a year and four months. In this case it happened, as in other cases which I had seen, that a permanent effect had been produced on an efferent nerve on whose agency the spasm depended, and not a mere temporary relaxation of the affected muscle.

March 20th. — Eyes continue strong. No return of spasm, nor intolerance of light.

I now found that the vision of the right eye was considerably inferior to that of the left, so much so that she could not read with the former, from its having suffered more severely from inflammation, to which both eyes had been subject in infancy.

April 3d.—Continues well.

It becomes a question of much interest both in a physiological and in a therapeutical point of view, how the asphyxia produced by the inhalation of a narcotic vapour should exercise so favorable an influence over hyperæsthesia and spasm, as this case shows it to do. That it is the presence of the anæsthetic in the blood, operating on the nervous centre which proves so useful, scarcely admits of doubt. Whether the spasm is to be attributed to morbid action reflected from the fifth nerve, or from the optic, the chloroform, circulating with the blood, by removing the excitement of the sentient nerve, subdues the inordinate action of the motive one, namely, the facial; and by repeating the application of the medicine till the symptoms are overcome, the effect, as far as my experience goes, happily proves permanent. Of the action of chloroform, sulphuric ether, and indeed of narcotics generally, on the blood or on the nervous substance, few, I presume, will feel any difficulty in acknowledging that, in spite of the theories of Baron Liebig, Dr. Snow, and others, we at present know nothing.[1]

[1] See Headland's 'Essay on the Action of Medicines,' 2d edition, p. 253, London, 1855.

ON THE

EFFECTS OF TWELVE WEEKS' RESIDENCE

IN

BULGARIA

(DURING THE MONTHS OF JUNE, JULY, AND AUGUST, 1854)

ON THE SUBSEQUENT HEALTH OF THE

BRITISH TROOPS IN THE CRIMEA.

BY

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COMMUNICATED BY

DR. JENNER.

Received April 16th.—Read June 9th, 1857.

It may perhaps be presumed that the inquiries regarding the causes which led to the great losses by disease amongst the troops in the Crimea during the first seven months of the campaign there, have fully attained the object for which they were instituted.

But notwithstanding all that has been written about this

eventful period, some elements of causation in the induction of disease amongst the troops of the allied armies have been entirely overlooked, disregarded, and lost sight of throughout the inquiries into the nature and origin of the sickness and diseases of the soldiers in the Crimea.

One cause, to which I would particularly allude, may be characterised as "*the persistent pernicious influence of the residence in Bulgaria upon the health of the ex-Bulgarian portion of the Crimean army.*"

There are three remarkable periods into which the medical history of the late Russian war may be divided.

1. The period of the residence in Bulgaria from about the end of June, 1854, till September of that year.

2. The period of the first seven months' occupation of the Crimea in the camp before Sebastopol, during which the losses sustained by the allied troops from disease alone, have not been surpassed by any army in the history of the world.

3. The period after April, 1855, characterised by a gradual return of the army to a state of health and efficiency equally unsurpassed. It is entirely due to the laborious exertions of Sir John McNiell and Sir Alexander Tulloch that we are indebted for precise information regarding the causes of the unprecedental losses to the strength of the army which took place during the first seven months of the campaign in the Crimea.

They have shown, in the clearest possible manner, how these losses are attributable to the combined influence of several causes, namely:

(1.) The influence of circumstances inherent to warfare, and especially the excessive amount of duty performed by men, few in number and inadequate in strength.

(2.) The influence of departmental deficiency, to which the great privations of the troops were in a great measure due.

(3.) The pernicious endemic influences of certain localities in the Crimea in which bodies of men were encamped.

It is now my object to show that the inactive residence in Bulgaria during three months exercised a persistent pernicious influence upon the health of the troops in the Crimea; and which continued to make itself felt, more or less, throughout the campaign, but more especially during the first seven months; nay, it may even now be doubted whether many who passed through the campaign in Bulgaria are as well able to resist disease and sickness as their constitutions were wont to do.

It is known, from the evidence of Dr. Mapleton, in 'Parliamentary Paper' No. 247, p. 253, for 1855, that the general health of the troops in Bulgaria may be described as "sickly." They were "using up" while there. An estimated per centage of illness or sickness of the army during their twelve weeks' residence in that district cannot be stated. Many men were weak and ill, and lost flesh rapidly, though they were not under medical care in hospital; and when asked as to their health, they could not definitely say what ailed them. The troops were depressed in spirits from inaction, and were terror-stricken from the suddenness and fatality of the attacks of disease. Long drills, combined with bad and unwholesome tents, great heat during the day, followed by cold and dewy nights, fogs, morning and evening mists from paludal districts, great range of temperature, sour brown bread, and ill-assorted food, contributed to "use up" the strength of the men, and to put the army into that very unsatisfactory state in which it was previous to the embarkation for the Crimea. Physicians will at once recognise that the condition of the men here described corresponds to that state of *anæmia* to which Vogel gives the name of *malaria-chlorosis*. The men were in a very bad state when they marched from the various camps to embark at Varna. They were so weak, that they could not and did not march more than between four and five miles a day, and it was as much as they could do to carry their necessaries, and some required to have their knapsacks and arms carried for them.

The immediate consequences of this may be read in the

losses sustained during the first *twenty-two* days' marching in the Crimea, when the famous "flank movement" was effected. During this short time the strength of the British army was diminished by about 5053 men, of whom 353 were killed at Alma, 1867 were wounded there, 2237 were sent sick to Scutari; and the loss on the "flank march" alone is estimated at about 596 men.

The future persistent pernicious influence of the Bulgarian residence it is now my object more fully to illustrate.

The sources of our information relative to the topics about to be noticed are chiefly contained in—

1. Parliamentary paper (No. 42) of the session 1857, which contains, amongst other information, the dates of the arrival in the East of each regiment, together with its original strength on joining the allied army.

2. Parliamentary paper No. 218 of session 1855, pp. 474—479, shows what drafts were sent out to recruit the different regiments in the Crimea, the amount of the draft, and the period of its arrival in the Crimea.

3. It is known from several sources what were the respective regiments which served in Bulgaria, *e. g.*, Parliamentary papers 218—242, and Russell's 'War.'

4. The general abstract of sickness and mortality appended to the volume published by Colonel Sir Alexander Tulloch, entitled, 'The Crimean Commission and the Chelsea Board.'

It is necessary, in the first place, to classify the Crimean army into two parts, namely:

1. Into the troops which served both in Bulgaria and in the Crimea, and which may be called the *ex-Bulgarian* part of the army.

2. Into the troops which served in the Crimea only, and which may be simply termed the *Crimean* troops.

In thus considering the sanitary condition of the British

army in the the Crimea, as influenced especially by *the residence in Bulgaria,* I offer the following results, merely as *approximative* conclusions to the truth, from data not sufficiently extensive to give such conclusions with absolute accuracy. The topics, however, are of such importance, that in all future pathological inquiries regarding the nature of the diseases from which our troops suffered, not only in the camp before Sebastopol, but also at Scutari, and other local hospitals, the influences of which I now write must occupy a prominent place in the causes of sickness, mortality, and general loss of strength—a place, however, which has not as yet been distinctly assigned to them. The great comparative loss which appears to have been sustained by the drafts especially requires investigation; but unless we are put in possession of the ages of the recruits sent out, their number and periods of service, their admissions to hospital, deaths, and invaliding, as distinct from the other troops, their comparative numerical losses cannot be accurately determined.

The comparative reduction in the strength of each portion of the army could only be inferred (1) by comparing the actual deaths in each, and the ratio of these to the admissions and to the original strength; (2) by comparing the ratio of deaths and invaliding to the admissions, and to the original strength of each of the two divisions of the army; (3) by comparing the per centage of drafts required to recruit the strength of the troops in each of the two divisions of the army.

In attempting approximatively to ascertain the results yielded by such comparisons, there is an evident source of fallacy which cannot, with the existing data, be eliminated; for although the numerical returns of the drafts and the losses of different regiments might be arithmetically dealt with as bodies of men, yet there are no data by which the individual soldiers constituting the drafts, (and consequently holding the same position as the Crimean troops,) could be separated from those in the same regiments who belong to the ex-Bulgarian class. A fallacy, therefore, is involved in the fact, that if A, B, C, and D, represent ex-Bulgarian

soldiers, and if *a*, *b*, *c*, and *d* were the drafts who joined them in the Crimea, the numerical losses of the whole during the period being *four* men, there is no evidence to show whether these *four* men were ex-Bulgarian (A, B, C, D), or Crimean soldiers (*a*, *b*, *c*, *d*.)

The following observations, therefore, merely illustrate the question, considered in a *nosological* point of view, and the evidence is thus far of a circumstantial nature only.

The following are the more important particulars which the tables appended to this paper illustrate, and which demonstrate, to a certain extent, the influence of the residence in Bulgaria as a cause of disease.

A.—Tabular Statements to show the Influence of the Bulgarian Residence on the General Health of the Troops.

Diseases.	EX-BULGARIAN FORCES.			CRIMEAN FORCES.		
	Total admissions from all diseases.	Ratio per cent. to the total admissions from all diseases.	Ratio per cent. to average strength (14959).[1]	Total admissions from all diseases.	Ratio per cent. to the total admissions from all diseases.	Ratio per cent. to average strength (8880).[1]
Fevers	6179	24·2	41·3	2780	16·2	31·2
Cholera	1007	3·9	6·6	872	5·2	9·8
Scorbutic diseases	1294	5·0	8·6	540	3·2	6·1
Enteric diseases	11098	43·1	74·1	7750	46·8	86·1
Frostbite	1034	4·0	6·9	810	4·9	9·0
Pulmonary diseases	1887	7·4	12·7	1110	6·7	12·5
Other diseases	2960	11·6	19·1	2671	16·1	30·0
Total, exclusive of wounds and injuries.	25459	...	169·3	16533	...	184·7

When we take the total numbers of admissions and

[1] This average strength is the sum total of the average strengths of each regiment as given by Sir Alexander Tulloch. See tables at the end of this paper.

average strength to estimate the ratio per cent. of admissions to average strength, it is found that the "Crimean" portion of the army suffered a greater loss of strength by *admissions to the hospital* than the ex-Bulgarian troops did by 16 per cent.; the numbers being 170 per cent. of admissions in the ex-Bulgarian troops, and 185 per cent. of admissions among the Crimean troops; and the following is a tabular view of the diseases which prevailed in each of the two portions of the army, arranged in the order of their greatest ratio to the whole admissions.

Ex-Bulgarian.	Per centage on total admissions from all diseases.	Crimean.	Per centage to whole admissions.
Enteric diseases	43·1	Enteric diseases	46·8
Fevers	24·2	Fevers	16·2
Pulmonary diseases	7·4	Pulmonary diseases	6·7
Scorbutic diseases	5·0	Cholera	5·2
Frostbite	4·0	Scorbutus	5·2
Cholera	3·9	Frostbite	4·9

But while the admissions to hospital were so much greater amongst the Crimean portion of the army, the deaths per cent. on these admissions were very much greater amongst the ex-Bulgarian part, as shown in the following table:

Deaths per cent. on total admissions from each disease:

Ex-Bulgarian.		Crimean.	
Fevers	23·3	Fevers	17·2
Cholera	63·5	Cholera	53·5
Scorbutus	11·3	Scorbutus	8·0
Enteric diseases	24·2	Enteric diseases	17·7
Frostbite	25·4	Frostbite	16·3
Pulmonary	11·0	Pulmonary	7·4
Wounds and Injuries	19·1	Wounds and Injuries	13·7

When we contrast the sanitary state of these two divisions of the army by means of the foregoing tables, the following general statement may be made:

1. That the admissions were greater amongst the *Crimean* portion of the army than amongst the ex-Bulgarian, and the

excesses were chiefly due to enteric diseases, scorbutic diseases, and cholera; while the excess of admissions from the *ex-Bulgarian* portion were chiefly due to fevers and pulmonary diseases compared with the other (Crimean) portion of the army.

2. That while the admissions were greater from the *Crimean* portion, the mortality compared with the amount of admissions was much greater amongst the *ex-Bulgarian* portion of the army than amongst the *Crimean*. The greater ratio of mortality chiefly arose from (1) cholera, (2) frostbite, (3) enteric diseases, and (4) fevers amongst the *ex-Bulgarian* part.

Some interesting features in these antithetical conditions may be noticed in the history of fever and cholera amongst the troops.

In the case of fevers, the difference in the whole admissions was 8 per cent., being so much more in the *ex-Bulgarian* troops than in the *Crimean*.

When it is considered that about 3·3 per cent. is the usual average of fever patients admitted into hospitals in large cities, such as London (*e. g.* Guy's), it is at once made obvious how prevalent were fevers in the Crimea, and especially among the *ex-Bulgarian* part of the army. The admissions for fever in the Crimea being 24·2 per cent. amongst the *ex-Bulgarian* troops, and 16·2 per cent. amongst the others, compared with the total admissions for all other diseases.

The pernicious influence of the residence in Bulgaria on the constitution of the soldier cannot be more clearly demonstrated than by those facts which show how readily that portion of the army succumbed. They were "used up" when they left Bulgaria; they were less able to cope with disease, and more of them died.

To demonstrate these statements, and illustrate more fully the antithetical conditions already adverted to, it is necessary to consider the classes of diseases one by one.

1. *Of the Fevers.*[1]

	Ex-Bulgarian troops. Average strength 14,959.	Crimean troops. Average strength 8880.
Total admissions to hospital in Crimea	6179	2780
„ deaths in the Crimea	919	294
„ deaths at Scutari or elsewhere	531	186
„ Invalided to England	242	159
Admissions per cent. on average strength	41·3	31·2
Deaths per cent. on average strength: Crimea, 6·1; Scutari, 3·6 (ex-Bulgarian force) „ 3·3; „ 2·0 (Crimean force)	9·7	5·3
Deaths per cent. on total admissions: Crimea, 14·7; Scutari, 8·6 (ex-Bulgarian) „ 10·5; „ 6·7 (Crimean)	23·3	17·2
Invalided per cent. on average strength	1·6	1·5
„ „ „ total admissions	3·9	5·0

The summary here given shows, that in fevers the admissions were greater in the *ex-Bulgarian* regiments by 10 per cent., calculated on the total strength of the troops; while the deaths per cent. were nearly doubled compared with the *Crimean* portion of the army, and calculated on the strength of each.

With regard to the rate of mortality amongst the total cases of fever admitted, the deaths per cent. were more amongst the *ex-Bulgarian* force by 6·1 per cent.; the ratio of mortality being 23·3 per cent. amongst them, while it was only 17·2 amongst the *Crimean* troops. For the sake of comparison, it may be noticed that in civil hospitals of large towns, such as in London, for example, Guy's, the average ratio of mortality from fever, over the admissions for that species of disease, is about 10·3 per cent. On looking to the numbers invalided, comparatively fewer appear to have been left among the *ex-Bulgarian* troops to be able to avail themselves of this source of escape from sufferings; for the numbers invalided from *fever* amongst

[1] See Appendix, Tables I and II.

the *Crimean* portion of the army was greater than in the *ex-Bulgarian* force by 3 per cent.

2. *Cholera.*[1]

	Ex-Bulgarian strength 14,959.	Crimean strength 8880.
Total admissions to hospitals in Crimea	1007	872
„ deaths in the Crimea	623	467
„ deaths at Scutari or elsewhere.....	28	5
Admissions per cent. on average strength.....	6·6	9·8
Deaths per cent. on average strength	4·1	5·2
Deaths per cent. on admissions: Crimea, 61·8; Scutari, 1·7 (ex-Bulgarian) ...	63·5	53·5

It is interesting to notice, with regard to cholera, the similarity of pathological phenomena presented by the history of this disease in Bulgaria and in the Crimea, compared with its known phenomena as an epidemic. Up to and including the period now under consideration, two separate epidemics may be said to have affected the army. The *ex-Bulgarian* campaigners were exposed to both of them. During the first epidemic, while in Bulgaria, they suffered severely, and indeed so long as they remained in the vicinity of Varna the disease never left their camps. They carried it with them to the Crimea, and it continued to seize upon and to kill many victims on the march from Old Fort to Balaclava, and more especialy after the Battle of the Alma, and on the famous Flank March, when the fate of the more feeble soldiers was at once sealed by death.[2]

During the Crimean epidemic of cholera the statistics present a remarkable antithesis to those of the other classes of diseases, more especially in the following details:

1. The per centage of admissions on the average strength of the *troops serving in the Crimea* only was much *greater*

[1] See Appendix, Tables I and II.

[2] See 'Glasgow Medical Journal' for April, 1857, for an account of the loss on the "Flank March."

than the ratio of admissions amongst the *ex-Bulgarian* troops; and the per centage of deaths from cholera, calculated on the strength of the troops, was also *greater* amongst the former than amongst the latter.

2. But the per centage of deaths, calculated on and compared with the admissions, was *greater* amongst the *ex-Bulgarian* forces by 8·3 per cent. than amongst the Crimean troops.

With regard to the first of these statements, it may be observed that, according to what we know regarding the nature of this remarkable disease, an explanation may exist in the circumstance, that already, during the Bulgarian campaign, the more susceptible of the troops had been seized by the disease, and many had already died. The disease, to use a common expression, "had worked itself out upon them." Fewer, therefore, were in a condition to take the disease, subsequently, amongst the *ex-Bulgarian* troops in the Crimea, and, therefore, fewer of this part of the army died in the Crimea from cholera.

On the other hand, again, with regard to the second of these antithetical statements, it may be observed, that, on account of the "used up" condition of the *ex-Bulgarian* troops, a much larger per centage died amongst them, of those who were attacked, than amongst those who were attacked amongst the *Crimean* troops.

3. *Scorbutic diseases.*[1]

	Ex-Bulgarian strength 14959.	Crimean strength 8880.
Total admissions to hospital in Crimea	1294	540
„ deaths in the Crimea	106	28
„ „ at Scutari or elsewhere	42	16
„ invalided to England	32	18
Admissions per cent. on average strength.....	8·6	6·1
Deaths per cent. on total admissions: Crimea, 8·2; Scutari, 3·1 (ex-Bulgarian) ..... „ 5·1; „ 2·9 (Crimean)	11·3	8·0
Invalided per cent. on admissions	2·5	3·3

[1] See Appendix, Tables I and II.

With regard to the scorbutic diseases it can very readily be understood, from the nature of this species of disease, how the "used up" condition of the *ex-Bulgarian* troops predisposed to the scorbutic state in the Crimea; and accordingly, it is seen, from the above summary, that amongst them the admissions per cent. in the Crimea, on the average strength, were greater by 2·5 per cent., and the deaths greater by 5·3 per cent. than amongst the Crimean troops.

4. *Enteric diseases.*[1]

	Ex-Bulgarian strength 14,959.	Crimean strength 8880.
Total admissions to hospital in Crimea	11098	7750
„ deaths in the Crimea	1057	686
„ deaths at Scutari or elsewhere	1648	690
„ invalided to England	384	211
Admissions per cent. on average strength	74·1	86·1
Deaths per cent. on average strength: Crimea, 7·0; Scutari, 11·0 (ex-Bulgarian) ... „ 7·7; „ 7·7 (Crimean)	18·0	15·4
Deaths per cent. on total admissions: Crimea, 9·5; Scutari, 14·7 (ex-Bulgarian) ... „ 8·8; „ 8·9 (Crimean)	24·2	17·7
Invalided per cent. on average strength	2·5	2·3
„ „ on admissions	3·4	2·5

Very nearly the same antithetical statements may be made regarding the enteric affections, amongst the two divisions of the army, as have been made regarding cholera, the ex-Bulgarian troops being in a predicament similar as to both. The susceptibility to these diseases had been already well-nigh exhausted in Bulgaria, and accordingly it is observed that more were admitted amongst the new comers to the Crimea for diseases of the *stomach* and *bowels* than amongst the old campaigners of Bulgaria. The ratio of mortality also, both on admissions and on strength, was greater amongst the *ex-Bulgarian* troops.

[1] See Appendix, Tables I and II.

One remarkable feature in the history of this class of diseases is the great mortality which attended them at Scutari, the ratio being 23·6 per cent. at Scutari against 18·3 per cent. in the Crimea. Such facts tend to confirm the belief entertained by not a few, that not only were the diseases prolonged and tedious at Scutari, but that Scutari, not only from such results but also from its physical climate, as I have elsewhere attempted to show,[1] was a very unfavorable place for convalescence, and never ought to have been selected as the head-quarters of our large hospitals.

5. *Frostbite.*

	Ex-Bulgarian strength 14,959.	Crimean strength 8880.
Total admissions to hospital in Crimea	1034	810
„ deaths in the Crimea	82	34
„ deaths at Scutari or elsewhere	184	99
„ invalided to England	73	51
Admissions per cent. on average strength	6·9	9·0
Deaths per cent. on average strength	1·2	1·1
Deaths per cent. on admissions: Crimea, 7·8; Scutari, 17·6 (ex-Bulgarian) ... „ 4·1; „ 12·2 (Crimean)	25·4	16·3
Invalided per cent. on admissions	7·8	6·6

Of the sufferings of the troops from frostbite, it is to be observed, that more were admitted to hospital amongst the soldiers *who served in the Crimea* only than from amongst the *ex-Bulgarian* campaigners; but that the per centage of deaths amongst this *latter* class of troops was very much greater than amongst the *former*, namely, 25·4 against 16·3, being a greater ratio of mortality by 9·1 per cent.

With regard to Scutari, the history of the cases of frostbite furnish additional facts in illustration of what I have already alluded to in the preceding paragraph, namely, that

[1] 'Glasgow Medical Journal,' April, 1857.

[2] See Appendix, Tables I and II.

the ultimate sufferings of the troops, from this class of diseases, treated at Scutari, were of the most prolonged and tedious kind. When, therefore, such facts are connected with an observation made by Sir Alex. Tulloch, to the effect that—"it was only by degrees that the small proportion who returned, of those who had left the Crimea sick, awakened a suspicion of the fatal character of the disease, and the extent to which the constitution of the troops had suffered by the hardships and privations they had undergone."[1] No other conclusion can possibly be arrived at than that Scutari was unfavorable for convalescence, and an unfit place for the treatment of such large numbers of our sick. I do not wish it to be understood for a moment that the physical climate of Scutari induced of itself diseases there; but that the nature of the climate, the local positions of the hospitals, their sanitary condition, especially as to drainage and overcrowding or even occupation of the corridors, all combined to develop diseases there (such as typhus fevers) and to maintain their existence when imported.

6. *Pulmonary Diseases.*[2]

	Ex-Bulgarian strength 14,959.	Crimean strength 8880.
Total admissions to hospitals in Crimea	1887	1110
„ deaths in the Crimea	126	55
„ „ at Scutari or elsewhere.....	94	38
„ invalided to England	172	72
Admissions per cent. on average strength.....	12·7	12·5
Deaths per cent. on admissions: Crimea, 6·1; Scutari, 4·9 (ex-Bulgarian) ..... „ 4·0; „ 3·4 (Crimean).....	11·0	7·4
Invalided per cent. to England	9·0	6·4

The ratio of admissions for this class of affections was nearly the same in both divisions into which I have divided

[1] Tulloch, l. c., p. 150.

[2] See Appendix, Tables I and II.

the army of the East; but the deaths amongst the *ex-Bulgarian* troops were greater, by nearly 4 per cent., than amongst the *Crimean* forces; and the numbers invalided to England were also greater amongst the former than amongst the latter by 4·6 per cent.

The nature of these pulmonary affections I have not been able to ascertain; and it would, no doubt, be of interest to know how far any of them were purely idiopathic, and how far a tendency to tuberculosis had been engendered, or had sustained a stimulus to development, by the Crimean or Bulgarian campaigns.

7. "*Other Diseases.*"[1]

	Ex-Bulgarian strength 14,959.	Crimean strength 8880.
Total admissions to hospital in Crimea	2960	2671
„ deaths in the Crimea	111	74
„ „ at Scutari or elsewhere.....	132	62
„ invalided to England	365	164
Admissions per cent. on average strength.....	19·1	30·0
Deaths per cent. on admissions: Crimea, 3·7; Scutari, 4·4 (ex-Bulgarian) ..... „ 2·7; „ 2·3 (Crimean).....	8·1	5·0
Invalided per cent. on strength	12·3	6·1

This last class, under which a very great variety of diseases are brought together, on account of the antiquated nosological classification employed by the Army Medical Department, seems to show, in the same way as most of the others have done, the "used up" condition of the ex-Bulgarian troops, but the details are not sufficient to found any other definite observations upon.

It is obvious that this inquiry regarding the diseases of the *ex-Bulgarian* forces, especially, might be pushed much further in many directions, did time permit, and if material could be got for diong so; and, perhaps, not a more interesting

[1] See Appendix, Tables I and II.

investigation could be prosecuted than that which would attempt to determine the extent of the period of latency of some of the diseases. On the return of our troops from Walcheren, it is known that fresh cases of fever continued to occur as late as five, six, eight, nine, and even ten months afterwards, so that the persistent pernicious influence of the Bulgarian campaign is not without a parallel. M. Boudin also quotes some remarkable instances in which the influence of a previous residence is felt after removal from a paludal district. Towards the end of April, 1843, the 69th regiment of French infantry arrived at Versailles from the citadel of Strasburg, the focus of a marshy district, where it had been quartered for two years. For more than a year afterwards this regiment continued to fill the hospital with intermittents, the disease attacking even those who remained free from it all the time they were at Strasburg.[1] It is known, also, that the late Director-general, Sir James Macgreggor, never counted upon men who had been long exposed to such influences in estimating the strength of the army during the Peninsular war.

B.—Influence of the Residence in Bulgaria on the Surgery of the War.[2]

Results of Wounds and Injuries.	Ex-Bulgarian regiments.	Crimean regiments.
Deaths per cent. on the total admissions: Crimea, 9·1; Scutari, 10·0 (ex-Bulgarian) ... „ 8·6; „ 5·1 (Crimean)	19·1	13·7
Invalided per cent. on the admissions	45·1	20·4

The numerical statement here given shows still further the persistent pernicious influence of the residence in

[1] 'Etudes de Géologie Médicale sur la Phthisie Pulmonaire et la Fièvre Typhoide, dans leur Rapports avec les Localités Marécageuses,' &c., par S. Ch. Boudin, Paris, 1845.

[2] See Appendix, Tables I and II.

Bulgaria upon the troops, by the comparative results of the surgery of the war.

It will be observed that the ratios of the deaths, per cent., in the Crimea and at Scutari, on the total admissions for wounds and injuries, were 19·1 per cent. amongst the *ex-Bulgarian* troops, and 13·7 per cent. amongst those who had served in the *Crimea* only. It may be here also noticed, for the sake of comparison, that amongst surgical patients in large city hospitals, such as Guy's, in London, the ratio of the deaths to the total surgical admissions is 11 per cent.; a statement which puts in a very favorable light the surgical results, on the whole, of the surgery in the Crimea.

With regard to Scutari, it is to be noticed, in this instance, that the per centage of deaths was also much greater here than in the Crimea.

The ratio of the numbers who were invalided amongst the *ex-Bulgarian* troops for wounds and injuries was nearly double those in the *Crimean* portion of the army, a statement which is of general application to all classes of the diseases already noticed.

General circumstantial evidence.—It may, perhaps, be contended, that the necessary operations of warfare bore with an undue influence on some portions of the army of the East rather than on others, so as to render less clear the effects of the Bulgarian residence upon the troops. It will be seen, however, from Colonel Tulloch's summary, that the brunt of the more severe duties of the front were chiefly sustained by that portion of the army which had been in the Crimea only, namely, the 14th, 18th, 39th, 71st, 17th, 34th, 89th and 90th regiments, in which, as also in the Highland Brigade, the mortality was as high as 45 per cent. for the whole period. So far, therefore, such a statement renders the pernicious influence of the Bulgarian campaign *à fortiori* more obvious.

We may also fairly set any partial advantage from short periods of service peculiar to some of the Crimean troops against any severe losses incident to service in the front.

Comparatively short periods of service were incident to the 14th, 18th, 39th, and 71st, who did not arrive till January, thereby escaping one severe outbreak of cholera and much of the suffering from scurvy and frost-bite. So also the 17th, 34th, 89th, and 90th regiments did not arrive till December, two of them well clothed, and thus far enjoying comparatively greater sanitary advantages.

It cannot, therefore, be said that the mortality amongst the *ex-Bulgarian* troops was in any way increased by the more severe and necessary operations of war during the siege, compared with the others. On the contrary, it is observed by Sir Alex. Tulloch, that "great as was the loss amongst the corps in front, it was much below what some of the corps suffered, especially the following, in which the mortality greatly exceeded the average."[1] These unfortunate regiments were the 46th, 95th, 63d, 33d, 23d, 44th, 28th, and 50th. The loss in these eight corps averaged 73 per cent. during the seven months.[1]

Now it is worthy of notice that *six* out of these *eight* regiments are *ex-Bulgarian* troops, and with the exception of the 46th, whose great loss appears to have been from cholera immediately after their arrival, the cause of the great mortality amongst the other regiments is not attempted to be accounted for. On looking carefully into the general *nosological* summary which Sir Alexander Tulloch gives, in a tabular form, it will be seen that *fevers, enteric diseases,* and *scorbutic diseases,* are those which swell the numbers on the lists of these regiments. The malarious influences imbibed in Bulgaria no doubt developed themselves by a zymotic-like action under the melancholy state of things which Sir Alexander Tulloch and Sir John M'Niell so energetically and boldly brought to light.

The subsequent history of the *ex-Bulgarian* troops in the Crimea very fully illustrates and substantiates a general remark made by Sir Alexander Tulloch, that "a distinction

[1] Tulloch, l. c., p. 158.

was manifested in favour of particular parts of the force, with reference to immunity from disease," and which he justly describes as due, principally, to the diminished intensity of the diseases, or to the greater strength of the constitution to resist their effects." The diminished intensity or less susceptibility to disease is manifest in the greater exemption from cholera amongst the *ex-Bulgarian* troops in consequence of their having already passed through a severe epidemic of it; while the greater strength of constitution to resist the effects of disease is exemplified by those troops who were in the Crimea only, as well in regard to cholera as to other diseases. "The diseases made their appearance in all in a greater or less degree, but were less fatal wherever the strength of the patients had not been materially impaired previous to the attack, or a moderate degree of rest, comfort, and improved diet could be obtained."[1]

These additional and important elements in the causation of sickness, disease, and mortality amongst the troops in the Crimea, to which I have attempted to direct attention and to illustrate, do not invalidate the general conclusion at which Sir Alexander Tulloch arrives, when he says that most of the causes "appeared capable at least of mitigation;" nay, more, I think that of all the causes which were suffered to operate to the injury of our brave soldiers, the residence in Bulgaria ought to have been avoided; and that under a proper sanitary police to control in some measure the encampments of the army, such a potent cause of sickness, disease, and mortality never ought to have existed.

From these details I think it is very clearly apparent that the long inactive residence in Bulgaria constituted a very prominent element of causation in the induction of disease in the Crimea; and that its influence long continued to be felt as an influence of a most persistent and pernicious kind, although it is well known that while in

[1] Tulloch's 'Summary,' p. 160.

Bulgaria many could not say they suffered from any well-defined disease to which a name could be given. They became, however, the subjects of impaired health, which showed itself by imperfect digestion, flatulence, diarrhœa, loss of muscular strength, sallow looks, morbid susceptibility to external impressions of cold or heat, with night sweats, loaded turbid urine, and an unhealthy state of the cutaneous and mucous circulation, but without any manifest local disease—a form of anæmia to which Vogel has given the name of *malaria-chlorosis*. Such a condition frequently came under my own observation while at Scutari, and although in such cases an apparent restoration to health is effected, yet the constitution is so impaired, that the application of any external cause, such as wet, cold, privation, or fatigue, at once brings about the development of some zymotic disease, such as fevers, dysentery, diarrhœa, cholera, scorbutus. Abundant examples of such-like results are constantly to be observed in the Lower Alps, in the Roman territory and Maremma of Italy, the Carolinas and Virginia of North America, the great district of the Sunderbund near Calcutta, as well as many other similar localities, some of which have been particularly noticed. "A glance at the inhabitants of malarious countries or districts," writes Dr. James Johnson, "shows that the range of disorders produced by the poison of malaria is very extensive. The jaundiced complexion, the stunted growth, the stupid countenance, the shortened life, attest that habitual exposure to malaria saps the energy of every mental and bodily function, and drags its victim to an early grave. Fever and ague, though two of the most prominent features of malarious influences, are as a drop of water in the ocean when compared with the other less obtrusive, but more dangerous maladies, that silently but effectually disorganize the vital structures of the human fabric under the operation of the deleterious and invisible poison.

"What are the consequences? Malarious fevers; or, if these are escaped, the foundation of chronic malarious disorders is laid in ample provision for future misery and suf-

fering. Compare the range of human existence, as founded on the decrement of human life in Italy and in England. In Rome a *twenty-fifth* part of the population pays the debt of nature annually. In Naples a *twenty-eighth* part dies. In London only *one* in *forty*, and in England generally only one in *sixty* falls before the scythe of time, or the ravages of disease."

Besides the prolonged residence in Bulgaria, it is now well known that other circumstances contributed in a very material degree to bring about the sickness and mortality amongst the British troops in the East during the Russian war. These have been already noticed. They were brought to light and demonstrated with the greatest possible clearness by Sir Alexander Tulloch, more especially in the recent publication to which I have frequently referred, and in which he gives a summary of information collected by Sir John M'Niell and himself relative to the sickness, mortality, and prevailing diseases among the troops serving in the Crimea. The information contained in this summary might very justly stamp Sir Alexander Tulloch as the pathologist of the war; and if his valuable researches into the state of the individual regiments had not been made, I could not have traced the influence of the residence in Bulgaria with anything like the precision necessary for such important inquiries; although I was well convinced, from many observations I made at Scutari, that the residence in Bulgaria was making itself felt, even at that remote period; but I had not the means to substantiate that impression, till the combined researches of Sir Alexander Tulloch, with the statements emanating from the War Office, and other documents of a public and official kind, all of which I have distinctly referred to, put us in possession of the necessary data upon which to found those conclusions which I have had the honour, through the kindness of Dr. Jenner, to communicate to the Society.

Crimea.

Number of Ex Foot Regiments	PULMONARY DISEASES.				ALL OTHER DISEASES.				WOUNDS AND INJURIES.			
	Admitted into Hospital in the Crimea.	Died in the Crimea.	Died at Scutari.	Invalided to England.	Admitted into Hospital in the Crimea.	Died in the Crimea.	Died at Scutari.	Invalided to England.	Admitted into Hospital in the Crimea.	Died in the Crimea.	Died at Scutari.	Invalided to England.
30th	45	—	5	10	82	1	3	7	158	38	17	56
55th	147	3	5	4	156	1	5	11	124	6	7	55
95th	52	5	2	5	101	7	7	6	140	13	19	82
41st	206	6	7	7	161	2	3	6	180	9	10	51
49th	159	8	2	3	97	6	7	6	173	1	12	62
4th	70	7	—	8	56	2	5	14	41	5	2	3
50th	34	6	1	7	122	9	4	14	73	12	7	18
28th	75	4	3	9	145	8	4	21	39	7	3	10
38th	109	6	8	7	181	2	3	20	72	10	2	11
44th	56	11	6	6	129	2	8	30	47	7	4	9
Rifle Briga	51	5	9	15	165	3	16	27	169	18	21	67
42d	77	4	2	3	107	4	3	7	25	1	4	8
79th	45	9	3	7	63	—	2	12	15	—	2	5
93d	115	9	2	6	89	8	5	11	20	—	4	21
Rifle Briga	87	—	—	—	207	6	—	—	100	7	—	—
7th	77	7	4	7	114	9	4	15	98	16	21	75
23d	28	5	2	8	93	9	4	15	78	9	12	65
33d	89	10	4	5	110	3	1	18	102	11	21	89
1st	44	1	7	8	96	6	8	14	58	4	1	7
19th	60	4	—	5	113	1	5	15	72	9	9	70
77th	76	4	3	6	96	4	7	22	117	9	7	31
88th	56	2	4	7	164	3	4	21	157	12	8	39
Grenadier	45	3	8	14	157	13	10	22	—	—	14	106
Coldstrean	40	6	4	5	115	1	5	11	164	11	18	42
Scots Fusil	6	1	3	10	60	6	10	18	101	7	14	77
Tot	1887	126	94	172	2960	111	132	365	2323	212	239	1059
Per cent. o	12·7	—	—	—	19·1	—	—	2·4	—	—	—	—
Per cent. o each dis	—	6·1	4·9	9·0	—	3·7	4·4	12·3	—	9·1	10·0	45·1

nly in the Crimea.

ITE.		PULMONARY DISEASES.				ALL OTHER DISEASES.				WOUNDS AND INJURIES.			
Died at Scutari.	Invalided.	Admitted into Hospital in the Crimea.	Died in the Crimea.	Died at Scutari.	Invalided.	Admitted into Hospital in the Crimea.	Died in the Crimea.	Died at Scutari.	Invalided.	Admitted into Hospital in the Crimea.	Died in the Crimea.	Died at Scutari.	Invalided.
2	6	93	2	2	16	98	1	2	16	95	4	6	42
7	3	90	13	2	8	152	4	2	19	195	15	19	54
9	1	27	4	4	8	149	9	4	10	133	14	7	30
9	2	68	3	1	3	111	1	3	9	133	8	3	35
2	4	22	2	4	2	418	1	5	13	70	20	2	17
—	—	56	1	—	—	59	—	—	—	12	—	—	—
11	4	28	12	6	10	146	21	17	19	99	7	8	32
1	1	101	5	4	1	123	2	3	7	16	—	—	—
7	5	37	2	1	4	128	—	4	8	28	4	—	3
7	7	82	3	5	9	292	23	5	25	43	5	2	9
10	1	10	3	2	2	104	1	2	7	39	4	4	2
4	6	71	—	2	2	134	2	3	9	34	4	2	3
3	2	53	1	1	—	110	1	4	3	33	3	—	1
5	2	82	2	3	1	104	1	2	4	48	2	2	3
20	4	7	2	—	1	80	1	2	10	36	3	3	1
—	—	13	—	—	—	84	—	—	1	6	—	—	—
—	—	166	—	—	3	209	3	1	1	47	1	—	—
1	—	45	—	—	—	106	2	2	1	22	3	—	—
1	3	39	—	1	2	115	1	1	2	43	2	—	—
99	51	1110	55	38	72	2671	74	62	164	1132	99	58	232
·1	—	12·3	—	—	—	30·0	—	—	1·8	—	—	—	—
·2	6·6	—	4·0	3·4	6·4	—	2·7	2·3	6·1	—	8·6	5·8	20·4

FURTHER OBSERVATIONS

ON

THE USE OF THE SPECULUM

IN THE

DIAGNOSIS AND TREATMENT

OF

UTERINE DISEASES.

BY

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The details of 220 cases of real or imaginary disease of the uterus, in which the speculum and caustic had been employed by other practitioners, were published in a tabular form in the thirty-eighth volume of the 'Medico Chirurgical Transactions.' Written histories, containing all the details of eighty additional cases which have since come under my observation in private practice, and in St. George's Hospital, have been condensed into a similar tabular form, and are now presented to the Society.

Of these 300 patients, 47 were unmarried, one had barely completed her eighteenth year; there were several under twenty, and the greater number under thirty years of age, and were suffering from hysteria, leucorrhœa, dysmenorrhœa, or some nervous affection of the uterus, without inflammation, ulceration, or any structural disease or displacement of the organ. In case 256 the patient had been informed that the womb was prolapsed and much ulcerated, and some instrument had been introduced daily for six weeks, by a physician extensively engaged in the treatment of uterine disease, and great expense incurred, with an aggravation of all the symptoms. In this case I found the hymen so perfect that it was impossible to reach the os uteri without employing an unjustifiable degree of violence. On the ground of morality, and on every other ground, the employment of the speculum in these 47 cases could admit of no defence.

Of these 300 patients 70 were barren, and the sterility was not removed, nor the hysteria, leucorrhœa, or disordered menstruation, under which the greater number were labouring, in a single instance relieved, or any benefit obtained. The injurious effects of a long course of speculum and caustic treatment upon the moral feelings and character of several of these individuals were not attempted to be concealed, the treatment being spoken of with horror and shame.

Of these 300 patients there were a considerable number suffering from cancerous disease of the uterus, in all of which the symptoms were increased by the introduction of the speculum, and the application of caustic or the actual cautery to the ulcerated vagina, and os and cervix uteri. In case 236, though the carcinomatous ulceration was in an advanced stage, and the nature of the disease obvious to the most inexperienced, after an examination with the speculum a false prognosis was given, and iron heated to a white heat in fires of coke, was for months passed through the tube, and delusive hopes of recovery held out to the last, and the pecuniary concerns of the husband involved in irretrievable

ruin by the charges, medical and surgical, incurred by such unscientific, unprofessional, and unprincipled proceedings.

Neither in the living nor in the dead body have I ever seen a case of simple ulceration from chronic inflammation of the os or cervix uteri, and to apply the term ulceration to states of the os uteri in which the mucous membrane, or, as it is termed by some, the basement membrane, is not destroyed by ulceration, is an abuse of language calculated only to deceive and mislead the members of the medical profession, from whom the truth has been carefully concealed. The speculum emanated from the syphilitic wards of the hospitals of Paris, and it would have been better for the women of England had its use been confined to those institutions.

No.	Date.	Civil Condition.	Age.	Previous Symptoms, Treatment, and State of Uterine Organs.
221	—— Aug. 4, 1855.	Married; two children.	30	*Previous History.*—Adhesion of placenta in the first labour. After this was in a low state, and had "Essex fever." Came to London, and was five weeks under the care of a physician, who examined the uterus once with the speculum, and said it had been injured by the adhesion. Various medicines were prescribed (quinine and steel), and an injection with alum. Did not gain ground till these remedies were "thrown away," and then got better by degrees. Numerous boils afterwards appeared. Weakness, inability to walk, and sense of bearing down. Examined by a physician in London, with the speculum, and congestion and chronic inflammation said to exist; leeches. Pregnancy again took place, and the health improved; labour natural, and suckled her child. Eight months after, an attack of low fever and inability to walk, and irritation of the bowels. Three days ago consulted a physician, who examined with the speculum, and said there was induration and ulceration of the womb, and that a long course of speculum and caustic treatment was absolutely necessary. An eminent hospital physician requested that this treatment should not be commenced until the state of the rectum had been very carefully examined. *Present State.*—Os uteri irregular, and harder than natural. The posterior lip projects unusually, but its surface is smooth. Both lips, seen through the speculum, red, like a cherry; but the surface was neither abraded nor ulcerated. The induration has nearly disappeared without caustic, and the general health improved.
222	—— Aug. 22, 1855.	Married; eight children.	33	*Previous History.*—Hysterical since an early period of life. Her last child born in May, 1854, and since has had pains about the pelvis; leucorrhœa and irregularity of the catamenia; rheumatism in the shoulder; and pains occasionally about the uterus, like those of labour. Consulted a physician in Jersey, who said, before an examination had been made, that there was "something wrong about the womb." The speculum then employed, and ulceration declared to exist. Caustic was applied, at first three times a week, then twice, and then once, till November, during the months of July, August, September, and October. There was no cough during the whole of the time, which she spent entirely upon the couch. The hysterical symptoms were considered by the physician a proof that there was some mischief about the uterus. In November it was found that there was "displacement" of the womb; the ulceration was said to be "cured." Three leeches were applied to the os uteri during the cauterizing, twice when the ulceration was going on, and once after. Cough commenced in May, 1855, and she is now threatened with tubercular phthisis. *Present State.*—Purulent expectoration, and a cavity at the top of the right lung. The introduction of the

				finger into the vagina gave exquisite pain; os uteri smooth, soft, and natural; no ulceration or cicatrix seen through speculum.
223	—— Aug. 27, 1855.	Married.	42	*Previous History.*—Hæmorrhage from the uterus, and the body enlarged during several years, in all probability from the presence of a fibrous tumour in the walls. Various means had been employed with partial relief. A physician was then consulted, who examined with the speculum, and showed the husband through the bivalve that chronic inflammation of the neck of the womb existed, and asserted that the disease had previously been wholly misunderstood, and that he had just been called in time to prevent irreparable mischief taking place. The speculum and caustic were employed, sometimes twice a week, for six or eight months. Not the slightest benefit resulted. Hæmorrhage and great debility followed, and a homœopathist has ever since had the care of the patient. *Present State.*—Great pain on exertion in the region of the uterus; the body large, and lying upon the rectum.
224	—— Aug. 27, 1855.	Married; four children.	54	*Previous History.*—Catamenia ceased five years ago; before this enjoyed good health, only suffered from an eruption on one of the legs, with varicose veins and leucorrhœa. Consulted a physician, who examined with the speculum, and said there was ulceration of the womb, and during three months was frequently cauterised, which gave great pain, and was followed by profuse discharge; health bad. *Present State.*—Uterus in a perfectly healthy condition; great disorder of digestive organs; hypochondriacal.
225	—— Sept. 10, 1855.	Married; several children.	37	*Previous History.*—Several miscarriages after the birth of her first child. Went to Edinburgh, where a long course of speculum and caustic treatment was adopted. Potassa fusa had been applied, and sloughing of the os uteri produced. The same treatment subsequently pursued in London. *Present State.*—Has been eighteen weeks in bed, on the supposition that pregnancy existed, and a miscarriage about to take place. Not pregnant. The os and cervix uteri hard, irregular, and disorganized.
226	—— Sept. 17, 1855.	Married; eight children.	28	*Previous History.*—The youngest child five months old. General health good; a feeling of bearing down, and heat internally across the lower part of the abdomen and in the groins; catamenia have appeared twice since her confinement. About a year since suffered from the same symptoms when pregnant. Consulted a physician in London, who examined with the speculum, but did not apply caustic, and said she was "labouring under some extraordinary disease," for which he did not recommend any particular treatment. A year before this, she had consulted a physician in Dublin, who examined with the speculum, applied leeches, and scarified the os uteri, and then frequently touched the part with lunar caustic. Another physician in London had been consulted, who said there was displacement of the uterus, and recommended an abdominal bandage. *Present State.*—No displacement; orifice of uterus unusually open; lips somewhat irregular, but not hard.

No.	Date.	Civil Condition.	Age.	Previous Symptoms, Treatment, and State of Uterine Organs.
227	—— Sept. 18, 1855.	Married twice; one child.	35	*Previous History.*—In 1843, when her child was born, health excellent. Not long after her second marriage supposes that she was nearly poisoned with lead in the pipes, and was paralysed. Consulted a surgeon, at Liverpool, who examined with the speculum, and declared that the uterus was in a state of ulceration, and she was cauterised twice a week for many months. Gradually recovered. "Was so afraid that she would have the ulcer of the womb again," that she recently came to London, and saw a physician, who examined her with the speculum, and cauterised the uterus twenty-one days in succession. She confessed that the use of the speculum and caustic gave her no pain, and had set her mind at rest about the ulceratiou. Has since had rheumatic gout, and an enlargement of the liver and one of the ovaries, and has tried hydropathy. The kidneys have been even supposed to be diseased, and homœopathy has been tried; and also the waters of Ems. *Present State.*—Vagina healthy; os uteri small; a slight hardness on the margin of the posterior lip, and slight irregularity. There is an enlarged and painful state of the right side of the hypogastrium, but uncertain if there be any organic disease of the right ovarium.
228	—— Sept. 20, 1855.	Married; sterile.	36	*Previous History.*—Has enjoyed robust health, but being extremely anxious to have an heir, a great variety of means, local and constitutional, have been tried to remove the barrenness, but without success. In Edinburgh various experiments had been tried, bougies, sounds, hysterotomes, after which she had nearly died from hæmorrhage. Then a long course of speculum and caustic treatment in London, by which her bodily health has been deeply injured, and the mental faculties impaired. *Present State.*—Os uteri hard and irregular, as if about to become affected with cancer.
229	—— Sept. 26, 1855.	Married six years; sterile.	28	*Previous History.*—In good health before marriage; six months suffered from "pricking and shooting pains in the womb." Consulted a physician in London, who examined with the speculum, and told her she had ulceration of the womb, and went on treating her with the speculum and caustic twice a week upwards of a year, whereby her state was not improved. *Present State.*—General health apparently good; os uteri soft, smooth, and healthy; altogether in a natural state.

230	—— Oct. 2, 1855.	Married; six children.	37	*Previous History.*—Nervous and hysterical; general weakness; numbness of the legs, and inability to walk; leucorrhœa. Reports that she was examined by a physician in the country five years ago, who declared that there was ulceration of the uterus, and had a course of speculum and caustic treatment of three months' duration; the caustic was applied five times every fourteen days. The discharge from the vagina continued unchanged; blood escaped after each application. This treatment was commenced when she had not been confined with her last child more than two months. *Present State.*—Perinæum has been extensively torn; uterus in a most healthy condition.
231	—— Oct. 5, 1855.	Married; several children.	40	*Previous History.*—Her eldest daughter is nineteen years of age, her youngest three; she supposes that she miscarried at Christmas, 1854, but an ovum was not seen. In May believed herself to be pregnant, and seven months gone. Her ordinary medical attendant examined the abdomen, and satisfied himself that the enlargement did not depend upon the gravid uterus. A physician, residing in London, was then consulted, who examined with the speculum, and declared that ulceration of the os uteri existed, and applied caustic seven or eight times. After he had reported that she was well the patient went to the sea-side, and remained there until a few days ago, looking much better, exceedingly well, and satisfied in her own mind that she was seven months pregnant. The catamenia had appeared last in February; she said the movements of the fœtus were distinctly felt. The areola were dark and broad, and milk could be pressed out of the left nipple. The abdomen was considerably enlarged, and the whole of the lower part dull on percussion; the umbilicus prominent. No sound of fœtal heart or placental murmur distinctly heard by auscultation. Internally the lips of the os uteri high up felt soft and swollen, as in the latter months of pregnancy. Through the anterior wall of the vagina and uterus the head of the fœtus was felt. The ballotement was distinct. There could be no doubt about the existence of pregnancy, and in due time labour came on, and a healthy child was born, and the mother recovered in the most favorable manner. *Present State.*—Perfect health.
232	—— Oct. 15, 1855.	Married; one child.	35	*Previous History.*—Had enjoyed good general health till two years ago, when she miscarried. Ever since has been weak, and felt constant pain in the back. Consulted a physician in London, who examined with the speculum, said there was a fissure in the os uteri, and applied caustic repeatedly, from which no benefit was derived. Catamenia regular, but painful; leucorrhœa; tongue clean; digestive organs healthy. *Present State.*—In very good general health, except a slight fissure in the os uteri, the result of her labour; no disease discovered. Leucorrhœa continues.

No.	Date.	Civil Condition.	Age.	Previous Symptoms, Treatment, and State of Uterine Organs.
233	—— Oct. 27, 1855.	Married; six children.	30	*Previous History.*—The youngest child ten months old. Since its birth has been weak, and has suffered from pain in the left hip, and sense of bearing down and leucorrhœa, in consequence of which the child was weaned. Catamenia regular. A medical practitioner in the country examined her in July with speculum, and told her she had an ulcer of the womb, and cauterization was frequently employed without any benefit. A great discharge, streaked with blood, followed each application of the caustic, and she was so ill that she could not sit up. Consulted another surgeon seven weeks ago, who examined with the finger, and said one lip of the os uteri was more thickened than the other. He then used the speculum, but said he discovered no trace of ulceration. *Present State.*—Leucorrhœa still continues. Has no more power in moving the limbs than before the caustic was employed. Is hyterical, and liable to faintness and palpitation of the heart. Os uteri near the ostium vaginæ; the anterior lip swollen, but not hard nor ulcerated, no trace of ulceration ever having existed in the os uteri; the posterior lip soft and natural. A copious white discharge seen flowing from os uteri.
234	—— Oct. 30, 1855.	Married; one child.	50	*Previous History.*—Was delivered with instruments (the perforator and crotchet) eighteen years ago, and had a slow recovery; the health ever since been "broken down." Several miscarriages since. In August last, during the absence of her husband, was suddenly seized with "relaxation" and uneasiness about the uterus. A physician in London was consulted, who made an examination with the speculum, and said, "he discovered engorgement and decided ulceration of the uterus, to subdue which immediate and constant operations would be necessary." He visited the patient twice a day, and each time introduced the speculum, and either applied caustic, or, as he termed it, "dressed the wound." This continued for a month, when no apparent progress having been made, the general health being very deeply injured, the husband decided that it should be discontinued. Since the cauterization, which was continued ten weeks, there has been discharge from the vagina; there was none before. *Present State.*—Perinæum has been extensively torn. There is a firm cicatrix in the upper part of the vagina, the consequence of sloughing. Os uteri small and hard.

235	—— Nov. 8, 1855.	Married; two children.	23	*Previous History.*—Had a miscarriage five months ago; leucorrhœa ever since. Catamenia regular, but painful. Hysterical; palpitation of the heart; headache. Six weeks ago consulted a surgeon, who examined her with the speculum, and said there was "inflammation of the neck of the womb, and what they called ulceration." Caustic was applied once, but having been followed by great pain and aggravation of the symptoms, it was not allowed to be repeated, and she has been worse ever since. *Present State.*—There is no swelling, hardness, or irregularity of the os and cervix uteri.
236	—— Nov. 10, 1855.	Married; several children.	43	*Previous History.*—On the 10th of November, 1855, with Mr. Cholmondeley, I saw a patient who had enjoyed good health till July, 1855, when the catamenia became irregular, and once hæmorrhage had taken place, but to no great extent, and without pain; a thin and bloody discharge continued during the months of August, September, and October. On examination I felt a fungous mass, with an irregular surface, soft in some parts and hard in others, growing from the anterior left of the os uteri, which did not feel hard, swollen, or irregular. The growth was continuous with the anterior lip. The posterior lip was affected in a similar manner, but slighter degree. I had no doubt that this was fungous cancer, and Mr. Cholmondeley had formed this opinion before, and stated it to the husband. On the 7th of February, 1856, I again saw this patient with Mr. Cholmondeley, when the disease had made some progress, and no doubt could remain respecting its nature. A few days after this a physician in London, and a licentiate of the Royal College of Physicians, was requested to see the case. After examining with the speculum, he declared that it was not too late to restore her to health, and said "he would make a woman of her;" but that it would be absolutely necessary for him to see her three times a week, and on the intermediate days his assistant would require to attend to apply the proper remedies; these being irons heated in a fire of coke to a white heat, and applied to the uterus through the speculum, and caustic when these were not employed. The speculum, actual cautery, and caustic treatment were assiduously continued, with great aggravation of all the symptoms, until the middle of March, 1857, when the patient died. On the 24th of March, 1857, Mr. Cholmondeley, having obtained permission, made a *post-mortem* examination, removed the uterus, and brought it to me on the 26th of March last. I have placed the cancerous uterus, with a perforation of the posterior wall of the vagina and rectum, on the table of the Society, along with the cancerous uterus of another female, where the speculum and caustic had been used daily for eighteen months, delusive hopes of recovery being held out to the patient and her relatives.

No.	Date.	Civil Condition.	Age.	Previous Symptoms, Treatment, and State of Uterine Organs.
237	—— Nov. 22, 1855.	Married; eight children.	40	*Previous History.*—Went to India in early life, and suffered severely from the climate. Nine years ago had a premature confinement; the placenta being retained, great force was required for its extraction. Inflammation of the veins of the uterus and crural phlebitis followed on the left side and then on the right. In 1848, was under the care of a practitioner in the north of India, who examined with the speculum, and said there was ulceration of the womb. Was twelve months under his care, during which caustic, leeches, and scarification, and injections, were employed. In 1849, the health not having improved, she removed to the Hills, where another practitioner ordered her to be cupped, and then gave tonics, without any advantage. In England she came under the care of a surgeon, who employed the speculum and caustic for several months, and on her return to India was seen by a medical officer of the Company, who gave the following report of her case, dated October 1st, 1853: "Mrs. — applied to me for medical advice, at Simla, May last, when I found her suffering from a long standing uterine affection, which had commenced and lasted ever since her last confinement, some five or six years previous, and for which she had been actively treated, both in this country and under the first medical men in Europe. On first seeing Mrs. — I found her suffering from a sensation of weight within the pelvis, and almost constant pain in the back, thighs, and groins, accompanied with occasional spasms in the uterus, which were always followed by a profuse bloody and sometimes colourless discharge. In addition to these symptoms, there was a sensation of sharp lancinating pain in the vagina, so severe as to prevent her sitting in one position with any comfort, which occasionally would increase in violence so as to be almost past endurance. On making an examination I not only found the neck and mouth of the womb much swollen and congested, but in a frightful state of ulceration, which fully accounted for the last-mentioned distressing symptoms. The body of the uterus was large and tense, rising above the pelvis, and about the size it would assume at the fourth month of pregnancy. I gave it as my opinion at the time that Mrs. — was four months advanced in pregnancy, or that there was a large tumour or some other foreign substance in the womb. The former suggestion she said was impossible, and the latter opinion I was induced to adopt for the following reasons: namely, that shortly after I had been attending her, a considerable flow of fetid water came away in gushes, which indicated a state of dropsy of the womb, which afterwards, however, turned out to be incorrect. *Treatment.*—I persevered in the application of six leeches to the mouth of the womb every sixth day, for about six weeks; kept the

				bowels open by a mild laxative electuary, and gave two-grain doses of the iodide of iron every day. This system had the effect of reducing pain, giving strength, and after the fourth application of the leeches the congestion of the os and cervix uteri completely disappeared. However, I continued the leeching, owing to the pain in the loins and occasional irritable state of the uterus, until on one occasion, after the application, a considerable discharge of dark-coloured blood, followed by fetid water, took place, which decided me upon immediately evacuating the contents of the uterus, whatever they might be. So I passed in a curved silver catheter, drew off the contents of the uterus, and after eighteen hours suffering, a fœtus, enveloped in dense membranes, came away. This I look upon as a blighted conception at an early period of uterine congestion, and acting as a foreign body in an intensely irritable uterus. I feel convinced in my mind, should Mrs. — ever suffer again in a similar manner, that a judicious direct application of leeches, a course of alterative tonics and mild laxatives, will be sufficient, not only to give relief, but to effect a cure." She returned to England. *Present State.*—The health greatly injured by the climate of India and the treatment. Has now sensation of bearing down or uneasiness about the uterus. The whole nervous system in a state of great irritation. Veins of the abdomen and lower extremities swollen; catamenia regular. The os uteri is neither congested nor ulcerated. It is smooth, soft, and regular. No enlargement nor displacement, nor disease, could be detected, both without and with the speculum. The health has been gradually restored by sea air, bathing, light diet, and mild alteratives and aperients.
238	—— Nov. 23, 1855.	Single.	34	*Previous History.*—Has always suffered from headache, and irritation and uneasiness about the nose. Catamenia appeared at seventeen, and have been regular ever since. Has never known what it is to feel well. At twenty-one, violent hysterical attacks; then suffered from an injury to the knee, by which she was confined to bed for months; it has remained stiff, and she has ever since had hysteria, and undergone every variety of medical treatment, directed by the most eminent physicians and surgeons in London. Recently has consulted a physician-accoucheur, who examined the uterus with the speculum, said it was ulcerated, and has repeatedly applied caustic, and stated that a long course of such treatment will be required. *Present State.*—In a hysterical and half maniacal condition. No disease or displacement of the uterus could be discovered;—nothing to justify the use of the speculum and caustic.

No.	Date.	Civil Condition.	Age.	Previous Symptoms, Treatment, and State of Uterine Organs.
239	—— Dec. 5, 1855.	Married; six children.	37	*Previous History.*—Has resided eighteen years at Bombay, and has suffered much from dyspepsia and bearing down pains. Had fever after her fourth confinement. Came to England in 1848, consulted a physician, who recommended a course of mercury, which disagreed. A physician-accoucheur was then consulted, who examined her with the speculum and said the womb was ulcerated, and applied caustic. Then consulted Madame B—— and was mesmerised, and had enemas with nitre and alum administered, and these she thought "did her a great deal of good." Another physician-accoucheur was consulted, who gave her steel, and said, after examining her with the speculum, that the womb was not affected. Returned to Bombay, and had a child nine months after; had a low fever with discharge, after that the bearing down returned, and irritation about the bladder. Had another child, and then again returned to England, her health "having given way." During the last six months has been under the care of a homœopathist. Is still ill. *Present State.*—Great relaxation of the abdominal parietes and vagina. Uterus low, but healthy in structure.
240	—— Jan. 11, 1856.	Single.	37	*Previous History.*—Treated some time for displacement of the uterus, and "seems to have been treated by the speculum and application of caustic for eight or nine months, which has caused her much pain, and from which she has gained little relief." The catamenia had been too frequent, and there had been leucorrhœa, and she had suffered severely from hysteria. Inflammation of the uterus and relaxation of the parts were said to exist. *Present State.*—No disease or displacement of the uterus. Hysterical.
241	—— Jan. 14, 1856.	Single.	20	*Previous History.*—Since the age of seventeen has suffered severe pain at each monthly period, the discharge has been scanty, and she has had strong hysterical fits, with sense of suffocation and sickness at stomach. Bowels constipated. The mouth is sometimes said to be turned to the left side. Consulted a practitioner, who said she had ulceration of the uterus, after examination with the speculum. *Present State.*—Hysteria without any uterine disease.
242	—— Feb. 5, 1856.	Married; three children.	35	*Previous History.*—Some years ago had a chronic eruption on the face, which disappeared after the internal use of arsenic. Two years since had gastric fever, with violent spasms, and lately has had a return of the same symptoms. Catamenia regular, with irritation of external parts; hæmorrhoids, leucorrhœa. Consulted a surgeon about twelve months ago, who examined her with the speculum, and told her she had ulceration of the mouth and neck of the womb. Caustic was

				applied, according to her request, daily for nearly a year. *Present State.*—Os uteri swollen, lips red and tender; no hardness; no part of the surface ulcerated. The eruption has reappeared on the face. General health better.
243	—— Feb. 7, 1856.	Married; three children.	26	*Previous History.*—Hysterical through life. Her last child born eighteen months ago, and having exerted herself soon after, was attacked with pain in the right side, and could not walk; she was obliged to give up nursing. Leucorrhœa followed, and injections were used; but she did not regain her health. November twelve months consulted a physician, who examined her with the speculum, and said there was slight ulceration of the womb, and he applied caustic; and he recommended her ordinary medical attendant to repeat the application once a week, and that was done eight times, and injections were used, and she felt much better for a time. Still she never lost the pain in the side. Consulted the same physician again in 1855, who again examined with the speculum, and ordered leeches to be applied to the os uteri. The bleeding was profuse, and produced great weakness. *Present State.*—Uterus healthy.
244	—— March 4, 1856.	Married; sterile.	39	*Previous History.*—Enjoyed good health till July last, when she began to suffer from pain in the back, and leucorrhœa. Catamenia regular, but profuse. Consulted a practitioner in the country, who examined with the speculum, and told her there was ulceration of the uterus, and applied caustic five times, and afterwards leeches, which bled profusely. *Present State.*—General health good; complains of a sensation of burning in the lower part of the abdomen; uterus in the natural state, viz., high up; the os is small and smooth, and not unusually open.
245	—— March 8, 1856.	Married; four children.	41	*Previous History.*—Born in the West Indies. Had a severe attack of measles seven years ago, which was followed by a great leucorrhœa, which continued for some months. Pain in the upper part of the right side of abdomen, and headache succeeded. Afterwards suffered from a sensation of sinking about the stomach and constant desire to vomit; then pains in the inside of the right thigh. Was first under the care of a homœopathic practitioner for eight months, then consulted a physician-accoucheur four years ago, who examined with the speculum, and said it was necessary to apply caustic to the womb. This was frequently done during eight weeks; but residing at a distance from London, the treatment, being inconvenient to the patient, was discontinued, and she was very little better after it was done. Has since consulted a surgeon, who has frequently cauterized the uterus, and applied leeches to the orifice. *Present State.*—Complains of dragging pain on each side of the hypogastrium; tongue white; bowels confined; functions of digestive organs greatly disordered; os uteri low down; anterior lip hard, swollen, everted, but the surface smooth; the posterior lip in the same condition; the whole os uteri harder and more irregular than natural, but not ulcerated. Body of uterus large and hard.

No.	Date.	Civil Condition.	Age.	Previous Symptoms, Treatment, and State of Uterine Organs.
246	—— April 2, 1856.	Single.	40	*Previous History.*—Enjoyed good health in early life; since the age of thirty, pain in the back and bearing down. Came under the care of a surgeon three months ago, and was informed by a physician-accoucheur, by whom she had been treated during the five previous months, that there was an enlarged condition of the cervix, and considerable fulness of the uterus. At this time the os uteri could not be felt; there was a distinct enlargement of the uterus, and no "cervix discoverable," no ulceration apparently. She had little or no pain, but a feeling of weight, and occasionally a difficulty in emptying the bladder; her general health good; catamenia regular, no hæmorrhage; iodine had been given largely, and bichloride of mercury recommended; caustic had been applied many times, but the speculum had not been employed; the caustic had been conducted along the left forefinger. *Present State.*—The front of the pelvis filled with a large, hard mass, uterine or ovarian; the os uteri is felt high up behind, in a healthy condition.
247	—— April 4, 1856.	Married eight years; sterile.	30	*Previous History.*—Uterine hæmorrhage three years ago; is ill six days, and then gets well, and then the discharge begins again; dreadful pain in the small of the back and stomach; sickness in the morning; great palpitation about the heart; feels faint at times, and cares for nothing; pains down the thighs and in the knees, which she cannot describe; the speculum and caustic had been employed. *Present State.*—There is a hard mass lying in front of the uterus and connected with it, in all probability a fibrous tumour imbedded in the anterior wall, very hard and irregular; the os uteri open, the neck short.
248	—— April 11, 1856.	Married twenty-two years; sterile.	44	*Previous History.*—For the cure of her sterility was recommended to go to Edinburgh and consult a physician-accoucheur; the uterine sound was first employed, "which had nearly destroyed her;" violent pain and inflammation followed its introduction; then wore the metallic ring and prong for some months to relieve retroversion, which was said to exist; the health greatly injured by this. At the end of a year underwent a long course of speculum and caustic, and ever since has been in a wretched condition; has been mesmerised. *Present State.*—Barren; extensive disorganization of the uterus and vagina; os uteri hard and irregular, and a firm cicatrix between the os and vagina on the left side; the rectum appears to be contracted near the part, and to be involved in the mischief.
249	—— April 13, 1856.	Married; one child.	33	*Previous History.*—Has had leucorrhœa six years, which commenced soon after the birth of her child; a great variety of remedies had been used without any benefit; it was said she had some fissure, and underwent a surgical operation without any good effect; a course of bichloride of

				mercury with tincture of bark had been tried, and also a long course of speculum and caustic treatment. *Present State.*—Os uteri soft and smooth, but unusually open; but no disease of any kind felt within; uterus not enlarged; the discharge is seen flowing from the os uteri.
250	—— April 14, 1856.	Married; four children.	37	*Previous History.*—Always weak and uncomfortable, with a grating sensation about the upper part of the chest; dyspnœa on exertion; pain in the back and front of the head; has had much illness. In 1847 had a miscarriage with great hæmorrhage, and a tedious recovery; catamenia regular since; has had leeches applied to the os uteri by the advice of a physician-accoucheur, and has undergone a long course of speculum and caustic treatment for ulceration of the womb. *Present State.*—A loud bellows sound over the region of the heart; pulse 80, intermitting; no swelling of feet; no disease of the uterus detected.
251	—— April 23, 1856.	Married; several children.	50	*Previous History.*—Catamenia ceased ten years ago; general health has been good, but recently has suffered from discomfort about the uterus, and there has been a little discharge of blood from the vagina; leeches to the back and warm baths were recommended, after which the uneasiness and discharge were increased. Came to London and consulted a physician, on the 15th of February, who examined the womb with the speculum, and said at first there was inflammation only, "simple inflammation," and he said he would cure it "in no time." He gave her an acid mixture to take three times a day, and an alum and zinc injection, and tannin; she saw him once a week, and at every visit he examined her with the speculum. Some time after, he said there was a small ulcer of the os uteri, and he touched it with caustic; this treatment was continued for upwards of a month, and being worse, the uterine sound was introduced, which produced such intense pain that she resolved not to permit him to make any further experiments upon her. *Present State.*—Uterus small as after the critical age; the lips flat and smooth; no inflammation, or ulceration, or organic disease of any kind detected.
252	—— April 29, 1856.	Married; seven children.	35	*Previous History.*—Leucorrhœa for many years. Consulted a physician five years ago, who examined the os uteri, and said it was ragged and irregular, as if affected with cauliflower excrescence; since has had two children, and the labours were natural. A few months ago began to complain of weariness and aching pain in the loins, and then had considerable uterine hæmorrhage. Consulted a physician in the country, who examined with the speculum, and recommended having the mouth of the womb rubbed frequently with nitrate of silver, and taking internally hydryodate of potash and citrate of iron; she was kept in the horizontal position six weeks. Benefit appeared for a time to be obtained from this treatment, but the symptoms have returned. *Present State.*—No organic disease of the uterus detected; but it is in a state of great morbid sensibility.

No.	Date.	Civil Condition.	Age.	Previous Symptoms, Treatment, and State of the Uterine Organs.
253	—— May 1, 1856.	Married; sterile.	30	*Previous History.*—Enjoyed good health till she married at the age of nineteen, and went to Madras six months after, where she had a severe attack of jungle fever, this was the commencement of her subsequent illness. Returned to England, and was partially restored to health; went back to India, when hæmorrhage from the uterus, which had previously been experienced, returned and lasted some time. In 1846 the catamenia disappeared for some months, but she was not pregnant. At Madras consulted a practitioner, who said there was retroversion of the womb, and ordered her to return to England and place herself under the care of a practitioner at Edinburgh, but the state of health prevented this being done till 1848. Examined at Edinburgh with the speculum, and informed that there was inflammation and ulceration of the womb, and contraction; the hysterotome was used, which produced great pain, and was followed by profuse hæmorrhage for three days; then an instrument was introduced to support the womb, but it was removed in two days, as it caused great pain and bleeding; then caustic was often applied for ulceration, then iodine in the shape of balls every other day; then sent to Manchester to visit some friends, and directed only to use cold water internally. When she returned to Edinburgh it was found that the cold water had produced an inflamed spot on the back part of the womb, which being tender to the touch, two leeches were applied, which bled profusely, and caused great weakness; then she took sarsaparilla and acids, and some ointment was applied to the os uteri, which gave great relief. Left Edinburgh in January, 1849, in consequence of a proposal to remove something by an operation from the back part of the womb, to which she would not submit. Came to London, and saw a physician-accoucheur, who examined with the speculum, and said the womb was displaced, and that an instrument must be worn for some months; he introduced a metallic instrument, which caused constant bleeding, and at times great pain; was kept in the horizontal position till May, with the instrument within her; health greatly injured. Then went to Brighton by advice, and found it impossible to sit up with the instrument: it was never taken out all this time. In fourteen days returned to London, and insisted on the instrument being removed; she wore it six months. Sailed for India in July, and gained strength during the voyage; but a thick, yellow discharge continued, and suffered as much as ever at the monthly periods. There had been hæmorrhage during the whole time the instrument had been worn, and never without pain. In November was seized with violent pain in the womb, which was considered by a practitioner at

				Madras to be neuralgia; he affirmed, however, that there was also ulceration, and the speculum and caustic were used every second day for several months, which caused great pain; was kept lying for three months; after this enjoyed tolerable health when left alone; but at times there was great pain of the parts and a profuse discharge, with irregular attacks of spasm of the womb about midway between each monthly period; these pains increased much in August, 1851, and the same medical practitioner at Madras applied a blister every week for eight weeks, or two small blisters over the lower part of the abdomen; from these she derived no benefit, but the reverse; became very weak, and had constant low fever. In March, 1852, had a severe fever; was first sent to sea and then to the Hills, where she remained two years, when the general health rapidly improved, but at times she suffered severely from spasm about the uterus; never suffered from these spasms till these instruments were used. In 1853 the spine became affected, and she could not walk, and could not use her arms, and was reduced to a state of great weakness; had a blister on the back, and was kept lying five months; then took large quantities of iron, and quite recovered. Returned to Madras in January, 1853, and enjoyed pretty good health. In 1854, the spasms of the womb occasionally occurred; during this time she was in no medical hands, and quite recovered her general health. Left Madras for England in February, 1855; in May consulted a physician-accoucheur, who said he found the uterus displaced; "put it to rights," and ordered her to take bichloride of mercury for some months; continued to take it till August, and then went to Ems. Recently, violent attacks and spasm of the womb took place; her nervous system affected by the mercury, then she took camphor and hyoscyamus. *Present State.*—A cicatrix on the left side extending from the os uteri to the vagina. The whole of the back part of the vagina and upper part has been injured; the uterus is fixed to the rectum by adhesion; the lips of the os uteri are partially destroyed.
254	—— May 6, 1856.	Married; sterile.	30	*Previous History.*—In good health till married five years ago, when she had a miscarriage. Since then has always been ill, and suffered from leucorrhœa; general strength greatly reduced. Six months after the abortion consulted a physician-accoucheur in London, who examined her with the speculum, and told her there was ulceration of the vagina; and he attended her five months every day, and "used caustic and all sorts of burning things." After this course of treatment was a great deal worse; she was salivated twice during that time. Then a course of sea-bathing. Then during eight months homœopathic treatment. Went to Bombay two years ago, and by the sea voyage restored to nearly perfect health. Rode on horseback in India, and nine months after felt unwell again, and suffered from "the same feelings of ulceration about the womb." Small growths then appeared around the orifice of the vagina. Returned to England two months ago.

No.	Date.	Civil Condition.	Age.	Previous Symptoms, Treatment, and State of Uterine Organs.
				The leucorrhœa, which had been profuse, has nearly ceased after using an astringent injection and taking citrate of iron. *Present State.*—Os uteri smooth, soft, and regular; cervix healthy; no displacement. At the orifice of the vagina there are growths very tender, but not ulcerated nor inflamed. No ulceration of the vagina; rugæ prominent.
255	—— April 15, 1856. Saint George's Hospital.	Married ten years; one child.	35	*Previous History.*—Delivered at Lambeth, with instruments, of her only child nine years ago. Five years since seized with general weakness; pain in the back and "falling down of the womb." Four years ago admitted into a hospital, and had leeches applied to the womb three times a week during four months. Five months after this went to Southsea, and was under the care of a practitioner, who said "the womb was diseased," and he applied caustic three times a week for about three months; but she did not derive any benefit from the treatment. *Present State.*—Symptoms continue; catamenia regular; is nervous, and complains of pricking and darting pains in the lumbar region; sensation of bearing down; globus hystericus; and a yellow-coloured discharge from the vagina, not offensive; no difficulty in evacuating the contents of the bladder and rectum. Cervix uteri hard and enlarged all round, particularly in the anterior part. Anterior lip small, flat, hard, and irregular, and somewhat swollen. The posterior lip appears to be entirely gone; a cicatrix in the vagina. It was questionable whether it were malignant disease, or simply the result of mal-treatment: it proved to be the latter.
256	—— May 9, 1856.	Single.	48	*Previous History.*—After much fatigue suffered from sense of bearing down, and sometimes difficulty in passing the urine. Catamenia irregular eighteen months. Last Christmas consulted a practitioner, who said "the womb was down and much ulcerated, especially the mouth." Some instrument was introduced daily for six weeks, which gave great pain. *Present State.*—Nothing in the appearance indicating the presence of any serious disease. The hymen so perfect that the finger could not be introduced into the vagina. No tumour of abdomen, and no signs of uterine disease.
257	—— May 12, 1856.	Married; six children.	43	*Previous History.*—Debility and leucorrhœa since her last confinement; catamenia regular; sensation of bearing down. Consulted a practitioner in the country, who examined her with the speculum and applied caustic, which she thought greatly relieved her; but the pain in the side and down the leg from which she had suffered continues. It was proposed to apply leeches internally;

				but this was not done. *Present State.*—Leucorrhœa and irriration and hæmorrhoids; os uteri healthy, soft, and smooth; body not enlarged.
258	—— May 24, 1856.	Married.	31	*Previous History.*—A miscarriage twelve months since; leucorrhœa after, with pain of back and right hip, of which she had long complained. Consulted a practitioner, who stated that there was a small tumour in the situation of the right ovarium, and prolapsus uteri. After three months the uterus was examined with the speculum, and it was found that the "os felt a little rough, as if there were some abrasion," and as if the surface were a little granular. This was touched with nitrate of silver twice, and got well. Five weeks ago the examination was repeated, and the womb found perfectly healthy. *Present State.*—Uterus healthy; but a little lower down than natural. A slight enlargement in the right side of the hypogastrium.
259	—— May 18, 1856.	Single.	40	*Previous History.*—Two years ago in perfect health; catamenia profuse. Has had little or no leucorrhœa; debility and pain in the lower part of the abdomen and back for some time; pain in passing urine. Speculum and caustic treatment ten months. *Present State.*—No disease nor displacement of the uterus. About the orifice of the vagina there are a number of painful excrescences growing.
260	—— June 23, 1856.	Married; six children.	35	*Previous History.*—Has spent several years in Ceylon in the jungle; had dysentery during pregnancy; the catamenia regular; headache; has been hysterical; leucorrhœa. The uterus was examined by a practitioner, who thought it would be necessary to apply caustic. Health greatly improved by the voyage to England. *Present State.*—No disease of the liver, spleen, ovaries, or uterus could be detected.
261	—— July 3, 1856.	Married; ten children.	43	*Previous History.*—The last two children still-born; was afterwards very weak, but without pain or any distinct illness, when she went to the sea-side in September last. Returned home greatly improved, but caught cold, and had cough and other symptoms of incipient disease of the lungs. Went back to the sea-side in February, 1856, with cough and expectoration of blood and dyspnœa. Consulted a practitioner there, who examined the uterus with the speculum, and said an "ulcer had formed at the mouth of the womb," and "he considered that this ulcer had been of some standing." Caustic was repeatedly applied; returned home with the symptoms of pulmonary disease much aggravated. *Present State.*—The posterior lip is gone, as in cases where it has been destroyed by sloughing. The anterior lip healthy; is now suffering from tubercular phthisis.

No.	Date.	Civil Condition.	Age.	Previous Symptoms, Treatment, and State of Uterine Organs.
262	—— July 25, 1856.	Married; three children.	30	*Previous History.*—Has spent some years on the Continent, and states that on one occasion she had taken medicines expressly for the purpose of bringing on abortion. Has never been robust. Three years ago had a swelling of the abdomen, which made it impossible for her to walk, and was extremely nervous. Last February was in Paris and consulted a surgeon, who examined her with the speculum, and said there was ulceration of the uterus. The husband was requested to look at the ulcer through the instrument. A course of speculum and caustic for four months followed, from which no benefit was derived. Came to England a month ago, and consulted an eminent surgeon, who requested me to examine and report upon the case. *Present State.*—Pain in the back, not constant; pain round the lower part of the abdomen, which is much swollen; swelling of the feet and ankles. The catamenia have been more profuse since the cauterization, and there has been a copious yellow discharge. Sensation of bearing down. Wears a bandage, without which she believes she could not walk at all. Tongue clean; bowels regular. Appears in robust health, but the mind disordered. No disease of uterus.
263	—— August, 1856.	Single.	21	*Previous History.*—Has been ill twelve months; before in excellent health, but hysterical. Catamenia regular till a few months since. In January last went into a hospital for the diseases of women, and was under the care of a surgeon, who examined her with an instrument, the name of which she did not hear. What application was made to the womb she does not know; but she left in three weeks worse than when she entered. Afterwards went to another institution, where she was examined by the physician, and informed that she was suffering from nothing but weakness. *Present State.*—Is suffering from hysteria without any organic disease of any organ.
264	—— Aug. 26, 1856.	Married; one child.	49	*Previous History.*—Enjoyed good health till the winter before last. Catamenia then became profuse, without pain. Consulted a practitioner at Belfast, who insisted upon examining with the speculum, and his report was "that there was some pustule which he cauterized," and recovery took place. Made a journey to the Continent, and was perfectly regular till Christmas, when the discharge again became excessive; came to Dublin, and consulted a physician, who examined her with the speculum and said "one of the lips of the womb was excoriated, and that in two months she would be quite well." Cauterization was then repeatedly employed, and on returning home to Belfast caustic was applied twelve times, and she was allowed to go about all the time while under

				this treatment. Left Ireland last month, and has suffered from long exposure to a heated and confined atmosphere in the country in a crowded assembly. Since then has suffered from great irritation about the bladder. *Present State.*—Perinæum extensively lacerated. The os uteri is healthy, but it is low in the vagina and resting unusually upon the rectum; and between the upper part of the vagina and the neck of the uterus behind there is a band of adhesion, which must have been the result of some injury during the labour twenty-seven years ago, or of the caustic at Belfast and Dublin.
265	—— Aug. 27, 1856.	Single.	30	*Previous History.*—Has been an invalid for nine years. Was long under the care of a deceased physician, who stated "that she was suffering from a shortening of one of the lateral ligaments of the womb." She was kept long upon her back, and had belladonna applied internally twice a week. Consulted a practitioner in the country, who expressed a suspicion that there was something wrong about the womb. The catamenia were regular but painful, and there was leucorrhœa. Remained fifteen months under his care, and took various remedies, without any decided benefit; then consulted a physician in London, who examined her with the speculum, and said there was inflammation of the uterus; had three leeches applied to the groins every fourteen days for six months; had injections and a warm bath every second morning. Did not derive any benefit from this treatment, and returned home, and then went to Paris. In 1850 consulted a physician-accoucheur in London, and was four months under his care. He examined her with the speculum, and said she had slight chronic inflammation and ulceration of the uterus, and caustic was frequently applied. It was applied more than thirty times, and it was always followed by great pain. No benefit whatever was derived from this treatment, except that the hysterical symptoms from which she had suffered were diminished. Returned home in November, 1850; consulted the same practitioner, who said there was still inflammation and ulceration. Four months in 1851 were spent in London under his care, and another course of speculum and caustic treatment of four months' duration. During the greater part of this time the caustic was applied twice a week. Was no better, though considered by the practitioner to be so. Afterwards was under the care of a homœopathic practitioner, and subsequently, during fifteen months, had another severe course of speculum and caustic treatment. *Present State.*—Has great tenderness along the upper part of the spine and is suffering from hysteria. There is no organic disease or displacement of the uterus. Catamenia regular; pain in the back, and inside of thighs; difficulty in evacuating the contents of the bladder and rectum.

No.	Date.	Civil Condition.	Age.	Previous Symptoms, Treatment, and State of Uterine Organs.
266	—— Aug. 26. 1856.	Married eight years; sterile.	30	*Previous History.*—In good health till her marriage; catamenia irregular. Has for a time had great pain when the bowels are relieved. Twelve months ago consulted a practitioner in London, who examined her with the speculum, and said there was disease of the womb, and that if this had not been attended to she might have had ulceration. Caustic was applied, which she thought did her "a great deal of benefit." She remained two months under his care; "but never got well." The leucorrhœa has been very great ever since, and she suffered from pain of the back. *Present State.*—Os uteri smooth and healthy; vagina in the natural state, and no disease about the external parts. There is a painful hæmorrhoidal tumour, which appears to be the principal cause of the irritation.
267	—— August, 1856.	Married; sterile.	40	*Previous History.*—General health good, and catamenia regular. For some time previous to the commencement of the present year had felt pains about the loins and bottom of the stomach when standing much and walking about; but did not apply to any medical practitioner until the beginning of this year, when she consulted one in the country, who informed her that she had ulceration of the womb, which caused great alarm. Leeches were repeatedly applied internally, and caustic was afterwards used and repeated at various intervals. Seventeen weeks kept on a sofa. Eleven weeks since last application of caustic. *Present State.*—Leucorrhœa profuse; "the uterus is enlarged and bulging on the left side; but not to a great extent, nor very hard. The os flatulous and elongated to the right; jagged a little."
268	—— Sept. 8, 1856.	Married twice; three children.	34	*Previous History.*—Four years ago, at the time of her second marriage, quite well, and continued well till January last, when a great discharge from the vagina took place without pain. Applied to a London practitioner, who examined her with the speculum, and said the womb was ulcerated. Three months under his care, during which time she was frequently cauterised. Then consulted a hospital surgeon, who examined with the speculum, and applied caustic for ulceration of the womb. The speculum was used twice a week, and the caustic applied; and she was under his care two months. Then consulted another practitioner, who examined her both with and without the speculum, and then wrote to me his opinion that she was affected with carcinomatous ulceration of the uterus. *Present State.*—I examined without the speculum, and found the vagina and uterus extensively disorganised with cancerous ulceration.
269	——	Married;	22	*Previous History.*—Enjoyed good health before her marriage, two years ago. During eighteen

	Sept. 3, 1856.	sterile.		months has had a yellow discharge from the vagina. In apparent good health, and does not complain of any uneasiness. Consulted two medical practitioners in the country, who reported that she was suffering from inflammation of the uterus. Leeches were applied internally. This was six months ago. She was then examined with the speculum, and informed that there was ulceration of the uterus. Was kept six weeks in the recumbent position, and was cauterized twice a week for seven weeks. The leucorrhœa did not diminish after this in the slightest degree. Ten weeks ago she came to London and consulted a physician, who examined her with the speculum, and said there was "a granulated complaint of the womb." Caustic has been very frequently applied. No better after this treatment. *Present State.*—Vagina healthy; os uteri small, smooth, and regular; cervix in the most healthy condition, no trace of any ulceration ever having existed.
270	—— Sept. 30, 1856.	Single.	22	*Previous History.*—Was born in a hot climate, and has been extremely delicate through life. Nine years ago had inflammation of the lungs, and it was feared she would die of consumption at Madeira. In 1845, had swellings of the leg and neck, when she arrived in London; and she consulted a practitioner, by whom she was told, after being examined with the speculum, that her case was one of great importance. The speculum and caustic, she reports, have been used dozens of times. She is said to have inflammation and ulceration of the womb. *Present State.*—Hymen completely destroyed. Uterus perfectly healthy.
271	—— Oct. 10, 1856.	Married; sterile.	27	*Previous History.*—Married seven months, and never pregnant. Enjoyed good health till the age of twenty-one, except suffering at the monthly periods; the catamenia were sometimes irregular, and she was hysterical. The pain was chiefly in the left side of the abdomen and left leg, and the legs were swelled. The medical attendant of the family was consulted, and he said by her look he knew there was something wrong about the womb. A digital examination was first made, and then the speculum was employed, and the opinion was given that ulceration of the neck of the womb existed. Thirteen times she was cauterized, and once had leeches applied internally. She was six months in the recumbent position. Her medical attendant then affirmed positively that the ulceration was "cured," and that she was perfectly well; but she felt worse than before the speculum and caustic treatment commenced, and there was great inflammation of the external parts. Has never been able since to walk any distance, or to exert herself as before twenty-one. Since her marriage the catamenia have been irregular, and she has had great pain in the back, and there has been a bloody and yellow discharge from the vagina. On the 7th of October, examined by a surgeon, who reported "that the speculum revealed nothing." *Present State.*—No displacement of the uterus. The anterior lip appears to be entirely gone. The posterior lip is perfectly smooth and healthy. Whether the anterior lip had been destroyed by potassa fusa, or by what means it had disappeared, uncertain.

No.	Date.	Civil Condition.	Age.	Previous Symptoms, Treatment, and State of Uterine Organs.
272	—— Oct. 9, 1856.	Married; six children, and two miscarriages.	37	*Previous History.*—Healthy appearance. Reports, that ten years ago she got up too soon after her third confinement. Seven months after was examined with the speculum by a physician, and told she had an ulcer of the womb. She was suffering from general debility, and could not walk, and had leucorrhœa, to which she had long been subject, and depression of spirits. The catamenia were regular. "She was four months under the speculum and caustic treatment, and lay up the greater part of that time." Was cauterized twice a week. Became pregnant again about eighteen months after; went to the full period, and was safely delivered. About three months after her delivery, consulted another practitioner, and another course of speculum and caustic treatment of nearly the same duration was gone through under his direction. Under this appeared to get well. Afterwards miscarried with twins. The ulcers did not appear again. Was confined with another child, and not long after the ulcers again began to appear; and she consulted the same practitioner, and underwent another long course of speculum and caustic treatment. Had another miscarriage, and another child, born December twelve months. The labour natural, and afterwards went on well till the seventh week, and "then began to feel that there was another ulcer coming." She knew this "from the weight in the lower part of the abdomen and pricking pains." From December to June was under the care of the same practitioner, during the whole of which the treatment with the speculum and caustic went on once a week. It was well nearly once or twice, but as soon as an ulcer got well another appeared; and this happened four times. Is now under the care of a homœopathic physician. *Present State.*—In good general health, and no disease or trace of disease about the uterus. The mind disordered.
273	—— Oct. 25, 1856.	Married; sterile.	40	*Previous History.*—Has been ill since last January. Not strong for years, the constitution having been injured by a residence in the West Indies. Had suffered from leucorrhœa. Has been for a time under the care of a physician in London, who has examined her with the speculum, and has been informed that she is labouring under ovarian and uterine congestion, and that the mouth of the womb is ulcerated. Caustic was applied once every week during February and April, when she had a miscarriage, having been pregnant during the whole time this treatment was pursued. Has been very ill ever since, and has now placed herself under the care of a homœopathic practitioner, by whom I was requested to determine both with and without the speculum the condition of

				the uterine organs. *Present State.*—Uterus low down; orifice open, so that the finger passes readily within the cervix; no hardness felt; the lips smooth and regular all round. No blood nor pus upon the finger after the examination. With the speculum the orifice was seen open, and a quantity of white fluid escaping from it. Lips perfectly healthy.
	274	—— Oct. 31, 1856.	Married; four children.	37	*Previous History.*—The age of the youngest child two years. Appears in perfect health, but states that she has been suffering from pain in the back more than twelve months, and that there has been a great discharge between the monthly periods, which have been regular. Has had a miscarriage since the birth of her youngest child. Was under the care of a medical practitioner eight months, and injections were employed. Last January examined with the speculum by a medical man, and informed that she had excoriation of the womb, "not what he would call ulcers." Was cauterized, but not more than four times. The speculum was used much oftener. The discharge was increased during the treatment, and it has since been of a greenish colour, and offensive; and there has been great pain of the back and sense of bearing down. Had spent three years in India. *Present State.*—The uterus is lower down than natural, and the fundus resting upon the rectum. The os uteri unusually open. The lips are soft and smooth, and in a healthy condition; but the glands of the cervix are enlarged, and on the right side one of them is hard.
	275	—— Nov. 4, 1856.	Single.	28	*Previous History.*—Left her situation as governess, some time since, in consequence, according to her statement, of the catamenia being profuse, and "knobs in the groins." Was twelve months under the care of a physician, somewhere in London, who examined her frequently with an instrument, and said there was ulceration of the womb. Derived no benefit from the treatment. Doubtful if she was cauterized. *Present State.*—Hysterical. No disease of uterus detected.
	276	—— Nov. 15, 1856.	Married; one child.	28	*Previous History.*—Ever since the birth of her child, two years ago, has suffered from indisposition, and has been very nervous and hysterical. No leucorrhœa. Not long ago saw a medical practitioner in London, who examined her with the speculum, and declared that she had extensive ulceration of the uterus, and that "he would cure the disease in two years," if she would submit to the necessary treatment; and that he would require to see the patient twice a week during the whole of that time. *Present State.*—The perinæum has been partially destroyed. At the anterior part of the cicatrix there are two large painful excrescences growing. The whole vagina exquisitely tender to the touch. Complains of a constant sense of bearing down. Great difficulty in getting the bowels relieved. Pain in the hypogastric region. Uterus healthy.

No.	Date.	Civil Condition.	Age.	Previous Symptoms, Treatment, and State of Uterine Organs.
277	—— Dec. 3, 1856.	Married; sterile.	35	*Previous History.*—Has spent a number of years in India, from which she has recently returned; and the following is the report of the case drawn up by her medical attendant, 2d of September, 1856: "Mrs. — was under my care during part of the months of March and April, on account of a bronchitic attack and at the same time complained of irregularity of the menstrual functions, said to have been present more or less ever since a miscarriage, two or three years previously. On careful examination found some hardness of the cervix, with such contraction of the canal as not to admit of the introduction of the smallest sized bougie for more than half an inch of its extent. There was slight tenderness of the cervix on pressure; but no other departure from a normal state of the parts could be detected. During the short period when under my immediate observation, the treatment consisted of local depletion, by scarification of the os three or four times; the application of Tinct. witon., once or twice, with the use of tonics, cod-liver oil at intervals. By the end of the month the cervix was softer and less tender, but the sound could not be passed. Cold water injections locally, with cod-liver oil internally, were afterwards continued; and in a short time the menstrual functions became more regular, and the general health much improved." *Present State.*—The health much injured by the climate of India. Uterine organs in the state in which they are usually found in sterile women.
278	—— Dec. 4, 1856.	Married; seven children.	32	*Previous History.*—Has suffered from dangerous hæmorrhage after three confinements. Since the last, born in February, has suffered from great pain of the back and constant discharge of yellow matter. Has several times been examined with the speculum;—the first time, six weeks after her confinement, when it was stated that there was "decided ulceration," and caustic was applied three times, which was followed by intense pain; leeches were afterwards applied twice to the os uteri; twelve the first time, and six the second. After this a small tumour formed on the inside of one of the legs below the knee, which ulcerated, and afterwards healed up. *Present State.*—The os uteri is very irregular; behind it appears that a laceration had taken place, the edges of which are hard and projecting. Both lips are hard and irregular, but no tendency to cancerous disease. Body of uterus not enlarged.
279	——	Married.	53	*Previous History.*—Consulted a physician-accoucheur in London four or five years ago, and not

	Dec. 5, 1856.			obtaining benefit, she has, in the last three years, been seen by another, by whom she has been treated for ulceration of the womb. Four years ago, when under the care of the physician first referred to, she was said to have slight ulceration of the womb; and there were painful growths about the urethra, which were removed. *Present State.*—There is no organic disease of the urethra, vagina, or uterus to be detected, but there is an exquisite degree of tenderness about the orifice of the urethra and vagina.
280	—— Dec. 11, 1856.	Married; one child.	34	*Previous History.*—Reported by her ordinary medical attendant to have been under treatment by eight physicians and surgeons in London of eminence in this department of practice. Was confined about ten years ago, and was delivered with instruments, and the perinæum was lacerated. Suffered afterwards severely from inflammation of the parts. Three months afterwards consulted the physician by whom she had been delivered, and he introduced a pessary, which added "ten-fold to her sufferings." The pessary remained several months, but the inflammation increasing, she saw another practitioner, who removed the pessary, examined her with the speculum, and said there was ulceration of the womb. Deriving no benefit from a long course of speculum and caustic treatment, she consulted another practitioner, who applied leeches to the mouth of the womb, which bled profusely, and left great irritation. Then he introduced a pessary of India-rubber, which produced great distress. Then suppositories were used, and injections. No medical treatment was adopted for a year, and then she was ordered to see another practitioner, who applied leeches after examining her with the speculum; afterwards caustic for a whole year. The caustic was applied twice a week for six months, during which time there was great discharge. This ended in 1851. Then consulted another physician, who examined her with the speculum, and recommended her to go to Kreuznach and drink the waters. Was there two months, but the waters disagreed with the stomach. The baths were taken. *Present State.*—The perinæum has been partially torn, and the part is now very tender to the touch, but not inflamed. Vagina sound. On the right side of the os uteri there is a considerable rent or fissure, which has probably been produced by the forceps in the labour. This part of the os exquisitely painful when pressed. Body of uterus not enlarged nor indurated.
281	—— Dec. 24, 1856.	Married; several children.	41	*Previous History.*—Health injured in early life by a severe attack of fever. Catamenia regular since eighteen. At twenty-four, was supposed to be labouring under consumption; afterwards had rheumatic fever, and then the cough disappeared. Then supposed to have disease of the heart; its walls said to be thin. Has at different times had severe hysterical attacks. Dangerous flooding after the birth of last child, in June. Has for some months been under the care of a

No.	Date.	Civil Condition.	Age.	Previous Symptoms, Treatment, and State of Uterine Organs.
				London physician-accoucheur, by whom the speculum and caustic have been employed frequently. The last application of caustic to the os uteri for ulceration was made yesterday. *Present State.*—The patient is now anxious to know whether she is suffering from ovarian or uterine disease. On examination of the abdomen no enlargement nor hardness could be felt in any part. As the speculum and caustic had been employed the day before, she was requested to return in a month to have the second part of her inquiry ascertained. The refusal to examine the uterus gave great offence. The mind disordered.
282	—— Jan. 12, 1857.	Married; several children.	Middle.	*Previous History.*—While in the gravid state, underwent a long course of speculum and caustic treatment for ulceration of the uterus. The existence of pregnancy not ascertained during this time, and not interrupted. The labour was natural, so she has recovered; but a suspicion still entertained that ulceration exists. *Present State.*—No disease of the uterus; sea-air recommended.
283	—— Jan. 19, 1857.	Married; two children.	44	*Previous History.*—Second labour protracted and catheter required. Thirteen months ago, soon after delivery, observed something peculiar about the abdomen. At the end of the month had pain in the right side of the abdomen; hæmorrhage from the uterus then took place. In the early part of the autumn came to London and saw a surgeon, who thought there was a deep abscess forming above the right groin. Gradually a hard angular tumour became perceptible on the right side of the hypogastrium, and it was accompanied with much pain, and she lost appetite and flesh; came to London again a week ago, when it was ascertained that there was a large, hard, irregular tumour fixed in the abdomen, low down on the right side, fixed to the iliac fossa. The os and cervix uteri were likewise ascertained to be affected with cancerous ulceration. There had been great pain within the pelvis, and for some time profuse, bloody, offensive discharge from the vagina; the speculum had been employed, and ulceration seen. It was proposed by her medical attendant occasionally to cauterize the carcinomatous ulceration of the os uteri through the speculum, to alter the malignant action going on in the part now in an advanced stage. *Present State.*—A large cancerous tumour in the right side of the abdomen, and the os and cervix uteri and a small portion of the vagina disorganized by cancer. It was not considered possible to alter by caustic the disease set up in this part, and it was recommended that the speculum and caustic should not be employed.

284	—— Feb. 5, 1857.	Married; sterile.	37	*Previous History.*—Had a severe attack of dysentery eight years ago. Since then has suffered from indigestion; catamenia have been regular. Last February suffered from headache and hæmorrhoids. Since then has been under a long course of speculum and caustic treatment for ulceration of the womb. In September was first examined with the instrument. About the close of the year the ulceration was reputed to be cured, and she took cod-liver oil, and feels somewhat better. Still she cannot walk; has pain in the right groin and back. *Present State.*—No hardness nor enlargement of the abdomen. The uterus is small, as in most barren women; the lips flat and smooth. No trace of any ulceration.
285	—— March 25, 1857.	Married; sterile.	26	*Previous History.*—In good health till her marriage, which took place eight months ago; and has suffered from no indisposition since, except great pain at the monthly periods, and some irritation about the bladder; no leucorrhœa. Consulted for this a practitioner four months ago, who examined her with the speculum, and told her there was ulceration of the womb. She has, ever since, been under speculum and caustic treatment. *Present State.*—The os uteri is small; the lips smooth; the orifice closed; there is no ulceration or disease of any kind.
286	—— April 21, 1857.	Married; eight children.	45	*Previous History.*—Some years since consulted a London practitioner, who examined her with the speculum, and declared that there was ulceration of the womb, and the speculum and caustic were employed twice a week for ten months, and nitrate of silver and iodine were occasionally employed. Afterwards consulted another physician, who declared there had never been any ulceration, but that there was ovarian disease suspected. *Present State.*—Right lobe of liver large and tender; uterus and ovaries apparently sound.
287	—— April 4, 1857.	Single.	50	*Previous History.*—Catamenia ceased twelve months ago; great irritation of the external parts followed, and leucorrhœa, and pricking pains internally. A surgeon examined her with the speculum, and told her she had ulceration of the womb. A course of speculum and caustic treatment of three months' duration; afterwards took iodide of potassium. *Present State.*—The symptoms continue. Doubtful if there be not some organic disease of the uterus commencing.
288	—— April 23, 1857.	Married; four miscarriages and one premature child.	34	*Previous History.*—Married seven years before she became pregnant. Four miscarriages afterwards took place; ever since catamenia irregular, and leucorrhœa, and the health impaired. A practitioner made an examination with the speculum, and informed her that the uterus was retroverted. Then followed a twelvemonth's course of speculum and caustic treatment for ulceration. No benefit. *Present State.*—Os uteri irregular. No hardness as in incipient schirrus.

No.	Date.	Civil Condition.	Age.	Previous Symptoms, Treatment, and State of Uterine Organs.
289	—— April 30, 1857.	Married; one child; several miscarriages.	27	*Previous History.*—Repeated miscarriages since the birth of her child, in 1855, with profuse discharges of blood from the uterus, which left her in a state of great general weakness. In March, 1856, consulted a physician, who examined her with the speculum, and stated that ulceration of the uterus existed, and that to this the miscarriages were to be attributed. The speculum and caustic were used upwards of thirty times in less than six weeks. Soon after the ulceration was reported to be cured she became pregnant again, and miscarried about the fourth month, and great hæmorrhage followed, which threatened her life. She has gradually rallied. *Present State.*—Os uteri so open that the finger can readily be passed; lips soft and smooth, and no disease felt within the cervix; the lips, seen through the speculum, pale and healthy; a small clot of blood hanging through the os.
290	—— April 30, 1857.	Married; no children.	28	*Previous History.*—In good health before marriage, twelve months ago. Catamenia regular. Consulted a physician on account of an eruption of inflamed pimples on the external parts and leucorrhœa, which had existed for years. Two months ago had a bilious attack, for which she saw the same practitioner, who said he thought she had inflammation of the womb. He examined with the speculum, and said his suspicions were confirmed. Immediately after he came once a week for five weeks, and applied caustic. The discharge was very great after each application of the caustic. He predicted she would be well in six weeks; but at this period she was much worse than when the treatment commenced. Catamenia profuse. Has suffered when the bowels are relaxed. *Present State.*—General health unsatisfactory. Glands of neck swollen. Vagina healthy; no displacement. Os uteri soft, but somewhat rough, and exquisitely tender.
291	—— April 30, 1857.	Married; five children.	31	*Previous History.*—Had retention of the placenta in her second confinement. Ever since has had uneasiness on the left side. Catamenia have been very painful, and the discharge irregular, and leucorrhœa ever since—a white viscid fluid in lumps. Two years ago consulted a practitioner, who first prescribed tonics, without examining the uterus. Afterwards examined with the speculum, and declared that there was ulceration; and applied caustic, which gave great pain. No benefit derived. This treatment was stopped, and another practitioner consulted, who declared that there was no ulceration, and never had been any. *Present State.*—Os uteri open, and very irregular; hardness felt within the cervix on the anterior part.

292	—— May 6, 1857.	Married; one child.	35	*Previous History.*—Was married a second time, between two and three years since, and enjoyed good health till about twelve months since, when she contracted gonorrhœa from her husband. After suffering from this for some time, she consulted a practitioner, who examined her with the speculum, and informed her that she was labouring under ulceration of the uterus, which excited the greatest alarm in her mind, from a dread that she had cancer, a relative having died of this disease. During the months of August, September, and October, the speculum and caustic were employed twice a week, and after this went fifty miles into the country every week till Christmas, to have the caustic applied. She has been nervous and depressed in the highest degree. *Present State.*—Os uteri soft and smooth. Neck of uterus unusually hard and swollen.
293	—— May 12, 1857.	Married; five children.	40	*Previous History.*—Enjoyed good health till about a year ago, when she began to suffer from uneasiness in the lower part of the abdomen, and had constant sanguineous discharge. In November last had profuse discharges of fluid and coagulated blood from the vagina, with more pain and loss of general strength. About a month ago went into the couutry and consulted a surgeon, who, after examining with the speculum, informed her that the womb was ulcerated. Caustic was not applied, but injections of decoction of oak-bark and alum. *Present State.*—The os and cervix uteri and vagina extensively disorganized by carcinoma. The speculum not required to discover this.
294	—— Saint George's Hospital. 1855.	Married; one child.	22	*Previous History.*—Miscarried with twins a year and ten months ago; since has had a serious illness with jaundice five months; having for some time had leucorrhœa, with gnawing pain about the left anterior superior spine and ilium, and "falling down of the womb;" became an out-patient of an hospital for the diseases of women. Was examined with the speculum by the physician, and informed she had ulceration of the womb, complicated with tumour; the speculum was frequently introduced; leeches were applied to the os uteri through the speculum; when the operation had been performed three times, it was found that the instrument could no longer be introduced on account of the tenderness and swelling caused by the previous treatment; leeches were therefore applied without the tube, and the most alarming hæmorrhage followed. *Present State.*—Has had constant sanguineous discharge till very recently; has continued pain, like that of labour, in the back and left side of the abdomen; globus hystericus, and nervous palpitation and hysteric fits; os uteri a little enlarged and tender; uterus perfectly moveable; cervix a little hardened on right side; spongy state of os uteri. Left the hospital greatly relieved.

No.	Date.	Civil Condition.	Age.	Previous Symptoms, Treatment, and Present State of the Uterine Organs.
295	—— Saint George's Hospital. 1855.	Married; two children.	34	*Previous History.*—Soon after her confinement had pains in the abdomen, dragging sensation about the pelvis, and leucorrhœa; palpitation and globus hystericus. These symptoms continued four years; then consulted a practitioner, who examined her with the speculum, and said he discovered an ulcer of the os uteri as large as half-a-crown. During four months caustic was applied through the speculum three times a fortnight, after which the ulcer was said to be healed; yet she did not find the symptoms at all alleviated. A second child born two years after, and this was followed by a small abscess in the vulva, which spontaneously burst; the former symptoms returned, and she underwent another three months' course of speculum and caustic; has been worse since. Was examined with the speculum immediately after admission, and the report was "that the ulcer was still found there." *Present State.*—Apparently in perfect health; band (the result of caustic) felt connecting the mucous membrane of the posterior wall of the vagina with the back part of the cervix uteri; slight fissure felt in posterior lip; os quite smooth; excessive depression.
296	—— Saint George's Hospital. Oct. 24, 1855.	Married; widow, one child, and one miscarriage.	37	*Previous History.*—Great hæmorrhage accompanied the miscarriage, which took place about three years ago. During the last three months there has been a constant yellow discharge, with pain in the loins, and darting and shooting pain down the right thigh; has been under treatment at a hospital, where the speculum and caustic were used every Thursday for seven weeks; and the last application was about five weeks ago, after which she left, not finding any relief whatever. *Present State.*—The os uteri is almost absent, the anterior lip cannot be felt; the posterior is small, irregular, and not hard; the cervix is slightly harder than natural; the body is lying somewhat forward. Ocular inspection;—both lips are nearly absent; the posterior is red, but there is no ulceration. Discharged greatly relieved on November 27th, 1855.
297	—— Saint George's Hospital. Oct. 24, 1855.	Married; one child.	24	*Previous History.*—Enjoyed good health till twelve months ago, when she had a difficult labour, and the delivery was completed by craniotomy. Since her confinement has had a yellow discharge, with pain in the lower part of back and thighs, and bearing down. Went to a dispensary, where a surgeon on her first visit examined with the speculum, and said there was ulceration, and applied caustic, this was done almost every week for two months; after the last application the parts became so painful that she was unable to leave her bed for three weeks; then salivated, and had eight leeches to the hypogastrium; has had cough and expectoration. *Present State.*—Weak and nervous; want of breathing in the chest, particularly on the left side; the os uteri is

				swollen, hard, tender, and extremely irregular; there is no ulceration, and no escape of blood. November 15th, os uteri is not swollen, much more natural, and free from pain.
298	—— Saint George's Hospital Feb. 21, 1856.	Married; several children.	35	*Previous History.*—Her illness, by report, commenced seven years ago, after her last confinement, in which recourse was had to instruments, and was followed by milk fever and "inflammation of the womb and bladder," and she was scarcely able to leave her bed for twelve months. She applied for admission into a hospital, where she remained eleven months with inflammation and enlargement of the womb, during which time she was salivated; was cauterized almost every week, and had a great number of leeches applied internally by means of a tube. Difficulty of passing the urine took place, and the catheter was required. Recovered slowly and partially till three months ago, when she was seized with "throbbing and stabbing pain" in the lower part of the abdomen and back, and afterwards uterine hæmorrhage. *Present State.*—Weak and nervous; difficulty in passing urine; catamenia regular; a dark-coloured discharge; abdomen distended and painful on pressure; globus hystericus; no tumour felt; os irregular and nodulated; cervix rather hard; the posterior lip is very irregular and nodulated; uterus moveable and not enlarged; there is no ulceration.
299	—— Saint George's Hospital.	Married; five children.	35	*Previous History.*—Ten days after the last labour, four years ago, was seized with excessive pain in the abdomen, with fever, and has never been well since. Became worse twelve months ago, and had bearing-down pains, with violent pains of the abdomen and loins, and leucorrhœa; she was then under the care of a practitioner, who used the speculum five or six times, and some red fluid; afterwards the womb was scarified, by which she lost much blood. Has been much worse since this treatment. *Present State.*—Pains continue, with leucorrhœa; os uteri high up, irregular, and flat; a small spongy mass springing from inside of anterior lip; hysterical attacks.
300	—— Saint George's Hospital.	Married; three children.	37	*Previous History.*—Her illness commenced six months ago, with a kind of sawing pain in both hips, which has continued to get worse ever since, and extends round the lower part of the back. Three months ago suddenly attacked with a severe flooding, which has occurred three times; catamenia have always been regular; has been under the care of a practitioner, who examined her with the speculum, and said she had ulceration of the womb; on several occasions he introduced the speculum, and applied "stick caustic," causing her great pain, and doing no good whatever. *Present State.*—Appears stout and muscular; complains of the same pains, and bearing down; has now a little sanguineous discharge; uterus moveable; on right side of os a hard, projecting mass; on left side, os and cervix are extensively disorganized and excavated; the vagina is not much involved in the disease.

INDEX.

PAGE

Age in epilepsy 158
AITKEN, Dr., on the effects of twelve weeks' residence in Bulgaria on the subsequent health of the British troops in the Crimea . 179
Analysis of fifty-two cases of epilepsy . . . 157
Aneurism, treatment of, by manipulation . . . 1
Ankylosis. On forcible extension and rupture of the uniting medium of partially ankylosed surfaces 125
Auricles, great dilatation of, in a case of disease of the heart . 167

Bivalve trachea-tube 69
Blepharospasm and photophobia, case of intense and long-continued, relieved by the inhalation of chloroform . . . 175
Breast, on scirrhus of the male 141
British troops in Crimea, effects of a residence in Bulgaria on subsequent health of 179
diseases of 184
surgery among . . . 194
tables of sickness and mortality . . 200
BRODHURST, BERNARD E., Esq., on forcible extension and rupture of the uniting medium of partially ankylosed surfaces . . 125
Bulgaria, effect of a twelve weeks' residence in, on the subsequent health of the British troops 179

Case of disease of the heart, with great dilatation of the auricles . 167
Causes, determining, of emphysema of the lungs . . 25
Causes of epilepsy 159
Chloroform, case of intense and long-continued photophobia and blepharospasm, relieved by the inhalation of . . 175
Crimea, effect of residence in Bulgaria on health of British troops in . 179
diseases occurring among the troops in . . . 184

PAGE
Crimea, surgery among the troops in 194
tables of sickness and mortality in . . . 200
Crimean troops 182
Croup, tracheotomy in five cases of, with remarks on the operation . 39
additional cases . . . 71
statistics of mortality in . . 50
Croup, diphtheritis as a cause of 49
Cuboid bone. Case of double talipes varus, in which it was partially removed from the left foot 119
Cyst, a large, successfully removed from the neck of a young woman, who was considered at birth to have been the subject of spina bifida 19

Determining causes of vesicular emphysema of the lungs . . 25
Diagnosis and treatment of uterine diseases, further observations on use of speculum in 201
Dilatation of the auricles, great, in a case of disease of the heart . 167
Diphtheritis as a cause of croup 49
Disarticulation of the scapula from the shoulder-joint, on . . 107
Disease of heart, case of, with great dilatation of the auricles . 167
Diseases of the British troops in the Crimea . . . 184
Diseases, uterine, further observations on the use of the speculum in the diagnosis and treatment of 201

Emphysema of the lungs, vesicular, determining causes of . . 25
Epilepsy, analysis of fifty-two cases of . . . 157
Ex-Bulgarian troops in Crimea 184
Expiratory theory in emphysema of the lungs . . . 28

Fergusson, Wm., Esq., on the treatment of aneurism by manipulation 1
Fuller, Dr., five cases of tracheotomy in croup, with remarks on certain points connected with the operation . . 39

Health of British troops in Crimea, effects of a residence in Bulgaria on 179
Heart, a case of disease of, with great dilatation of the auricles . 167

Impermeable urethra, on a new method of operating for . . 113
Inspiratory theory in emphysema of the lungs . . . 27

Jenner, Dr., on the determining causes of emphysema of the lungs . 25

PAGE

LEE, Dr., further observations on the use of the speculum in the diagnosis and treatment of uterine diseases . . 201
Lungs, vesicular emphysema of, its determining causes . . 25

MACKENZIE, WILLIAM, M.D., case of intense and long-continued photophobia and blepharospasm, relieved by the inhalation of chloroform 175
MARKHAM, Dr., a case of disease of the heart, with great dilatation of the auricles 167
MILTON, J. L., Esq., on scirrhus of the male breast . . 141

Observations, further, on the use of the speculum in the diagnosis and treatment of uterine diseases 201
Operation of tracheotomy in croup, remarks on certain points connected with 89

Photophobia and blepharospasm, case of intense and long-continued, relieved by the inhalation of chloroform . . . 175
Premonitory symptoms in epilepsy 159
Prostate, observations on the anatomy and pathology of the adult . 77

Scapula, on disarticulation of the, from the shoulder-joint . . 107
Scirrhus of the male breast, on 141
Sex in epilepsy 157
Shoulder-joint, on disarticulation of the scapula from the . . 107
SIEVEKING, Dr., analysis of fifty-two cases of epilepsy observed by the author 157
SOLLY, SAMUEL, Esq., case in which a large cyst was successfully removed from the upper part of the neck of a young woman, aged twenty-seven, who was considered at birth to have been the subject of spina bifida 19
SOLLY, SAMUEL, Esq., case of double talipes varus in which the cuboid bone was partially removed from the left foot . . 119
Speculum, further observations on use of, in uterine diseases . 201
Spina bifida; case in which a large cyst was successfully removed from the neck of a young woman, who was considered at birth to have been the subject of spina bifida . . . 19
Surgery of the war in the Crimea 194
SYME, JAMES, Esq., on disarticulation of the scapula from the shoulder-joint 107
SYME, JAMES, Esq., on a new method of operating for impermeable urethra 113

PAGE

Talipes varus, double, case of, in which the cuboid bone was partially removed from the left foot 119

Thompson, Henry, Esq., some observations on the anatomy and pathology of the adult prostate, founded upon fifty preparations of the organ, dissected by the author, and accompanying the paper 77

Trachea-tube, bivalve 69

Tracheotomy in croup, five cases of, with remarks on the operation . 39

additional cases . . . 71

statistics of mortality . . . 50

Treatment and diagnosis of uterine diseases, the use of the speculum in 201

Treatment, results of, in epilepsy 162

Troops, British, in Crimea, effects of residence in Bulgaria on health of 179

diseases of . . . 184

surgery among . . . 194

tables of sickness and mortality . 200

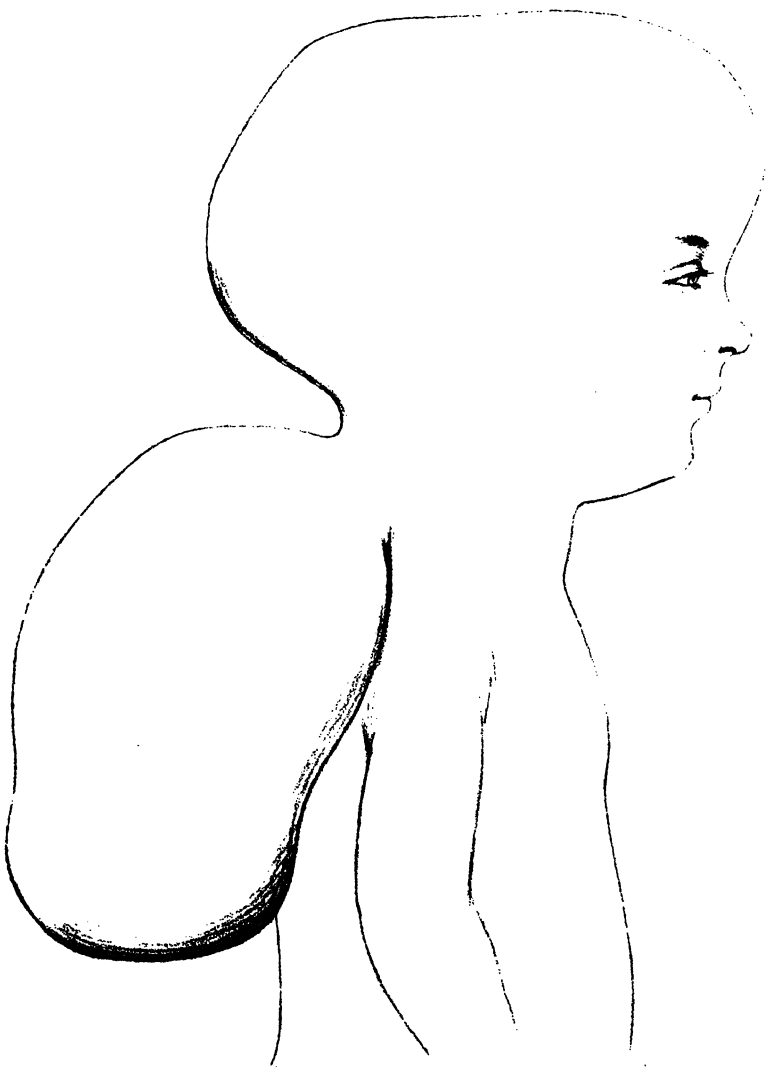
Crimean 182

ex-Bulgarian 184

Vesicular emphysema of lungs, its determining causes . . 25

Urethra, impermeable, on a new method of operating for . . 113

Uterine diseases, further observations on use of speculum in . 201



Mr Solly's case,
Aged 1½ year.

G.H Ford.

W.West imp.

Mr Solly's case,
Aged 29.

C.H. Ford.

Pl. III

Vol. XL

Section of the Tumour
from Mr Solly's case

Magnified 150 diameters

Tuffen West sculp. et excudit. W West imprimebat.